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NOV 21 1941

MOTOR AGE

FOR AUTOMOTIVE SERVICEMEN



A CHILTON PUBLICATION

NOVEMBER 1941

THIS ISSUE

- Defense-Service Statistics
- Service Features of the 1942 Cars
- Speed Defense with Parts, Equipment, Hand Tools
- Tune Up for Performance and Economy
- Cooling System Capacities
- Complete Specifications of the New Cars
- Beating Weather Head
- and Hundreds of Other Helpful and Profitable Ideas



DEFENSE-SERVICE ISSUE

ADVICE TO MOTORISTS

- ★ It's always bad to waste things — it's doubly bad NOW!
- ★ Save oil — save gasoline — prevent needless wear.
- ★ Simply install Hastings Steel-Vent Piston Rings. They stop oil-pumping instantly — and check cylinder wear.

[Quoted from current Hastings advertisement in
The Saturday Evening Post and 5 other national magazines.]



Duty rests heavily today on the service men of our nation. On them falls the responsibility for seeing that our vast motorized equipment does not deteriorate — that our cars, trucks and tractors keep rolling.

HASTINGS MANUFACTURING COMPANY, HASTINGS, MICHIGAN

Hastings Mfg. of Canada, Ltd., Toronto

Piston Rings • Piston Expanders • Valv-Rings

HASTINGS

STEEL-VENT PISTON RINGS

U. S. Patent Nos. 2,343,997, 2,375,408

Stop Oil-Pumping • Check Cylinder Wear

Life at Pensacola

(U.S. Naval Air Training Base)

recently sketched in action by Texaco's artist

FRANK GODWIN



OVER HE GOES! THE FIRST CADET OF ANY CLASS TO SOLO GETS DUCKED BY HIS CLASSMATES!

THE BIG MOMENT! "SHE'S ALL YOURS NOW... GOOD LUCK AND KEEP YOUR NOSE DOWN" - FIRST SOLO!



"BANK 'ER LIKE THIS AS YOU TURN." THEORY OF FLIGHT IS EXPLAINED BY INSTRUCTOR.

THEY'VE WON THEIR WINGS...

WHICH ARE PINNED ON BY THE "C.O." IN PERSON, THEY NOW ARE COMMISSIONED AS ENSIGNS.



"THUMBS UP" - NOT FOR A HITCH-HIKE, BUT TO TELL THE STUDENT HE HAS PASSED HIS SQUADRON FLIGHT CHECK!



TRAINED GROUND CREWS TUNE UP ENGINES

IN THE NAVY, **TEXACO** LUBRICANTS ARE SUPPLIED TO THE FLEET, TO THE MARINES AND TO THE COAST GUARD FOR EVERYTHING FROM BATTLESHIPS TO BOMBING PLANES.

TEXACO SERVES THE U.S. NAVY

and more than 45,000 Texaco Dealers serve the motorist with outstanding Texaco Products... Sky Chief and FIRE-CHIEF Gasolines - Insulated HAVOLINE and TEXACO MOTOR OILS and MARFAK CHASSIS LUBRICANT



For Your Enjoyment... 2 Great Radio Programs

FRED ALLEN
On the air every Wednesday night.

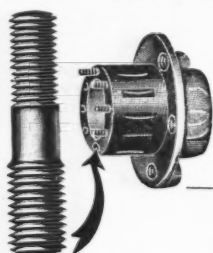
METROPOLITAN OPERA (Starting Nov. 29). Complete broadcasts every Sat. afternoon.

See your local newspaper for times and stations

FIX IT *with Short Cuts*



Champ-Items Reconditioning Short Cuts are time savers—money makers—do a permanent job. Send for free copy of this 72-page booklet—"Cures for Motor Car Ailments" with more than 60 Short Cut ideas on how to Fix-it.



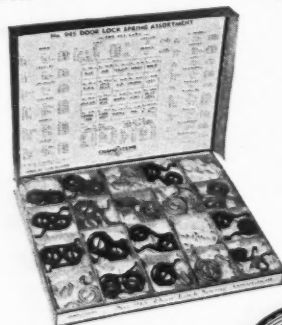
OVERSIZE TRUCK STUDS For All Popular Trucks

These studs have an oversize thread on one end and thus provide a permanent job when wheel hub threads are stripped or stud is broken off.

Window Regulator Repair Kits for all cars and trucks. Contain all the necessary parts to repair window lifts.



Self Threading Oversize Crankcase Drain Plugs for all popular makes of cars and trucks. A real life saver when threads are stripped or plug is lost.



Universal Speedometer Cable and Casing Assembly for all cars. A complete matched unit—only five numbers to fit all cars and trucks.



Door Lock Spring Assortments—for all cars. Each spring painted distinctive color for quick servicing—color chart packed with each assortment in metal box.

A few of the many other popular Champ-Items Reconditioning Short Cuts: Motor Mounting; Grease Seals; Spring Clamps; Shock Absorber Links; Steering Stabilizers; Fuel Pump Kits; Door Silencers, etc.

If it's a reconditioning short cut, Champ-Items make it.

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FROM



YOUR
JOBBER

CHAMP-ITEMS INC.

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MOTOR AGE

With Which is Combined AUTOMOBILE TRADE JOURNAL

FOR AUTOMOTIVE SERVICEMEN

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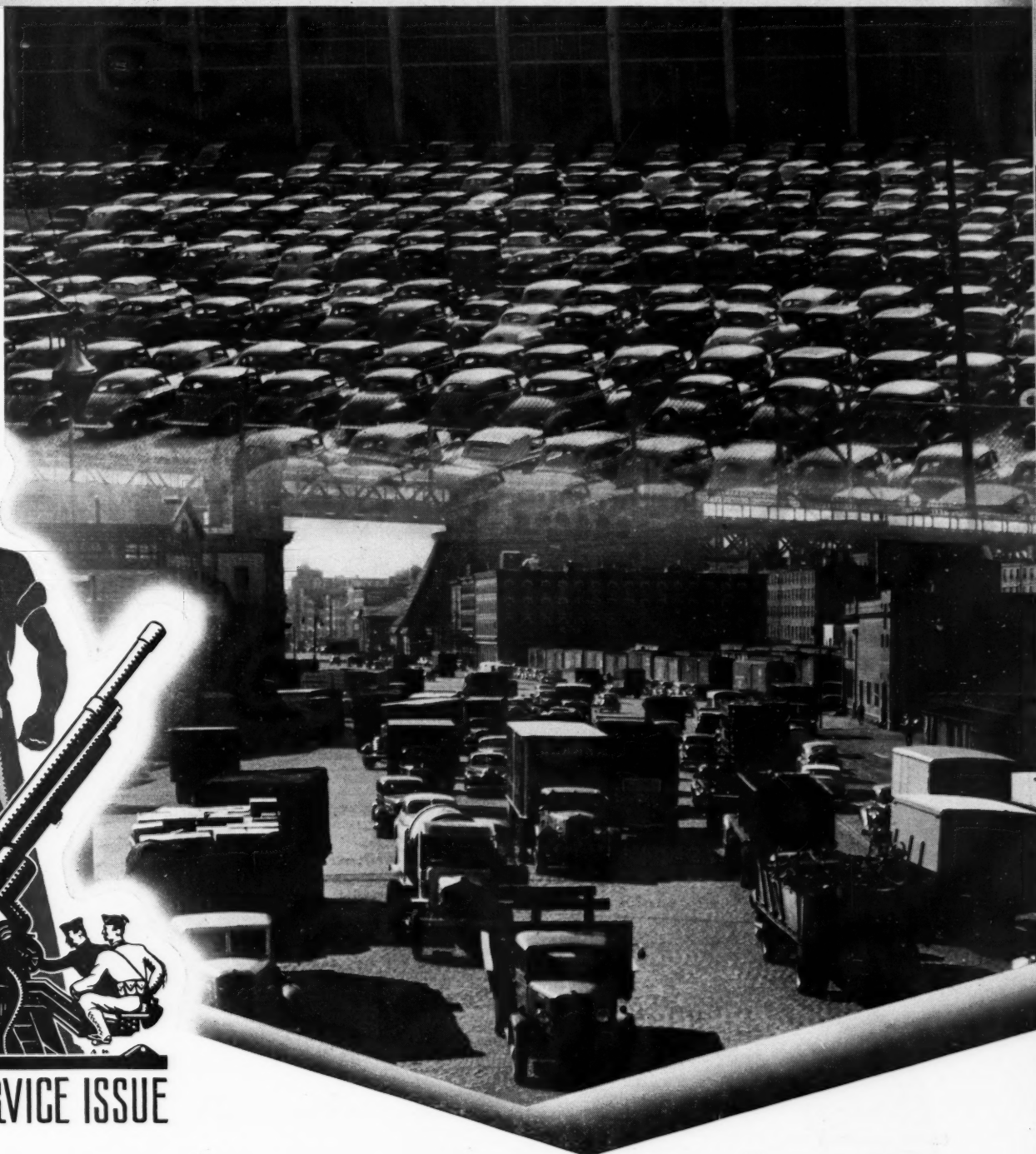
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MOTOR AGE



DEFENSE SERVICE ISSUE



AS increasing numbers of defense workers drive along the highways to crowd their cars into the munition makers parking lots and more manufacturers ship more goods on more trucks, servicemen of the country face a period of great problems and great opportunities.

The last few months have shown with increasing clarity that national defense is not a slogan, but a vast, far-reaching undertaking. Its demands take precedence over every normal business opportunity.

As a result, car sales have been severely curtailed, which in turn will result in increased service sales. Such increased service sales will be accompanied by demands from the car owner for improved economy of operation. These demand will be given increased emphasis as taxes and general costs of living becomes greater and the defense program takes an ever increasing portion of the available materials.

In presenting this issue of MOTOR AGE, the editors have striven to supply such information which will be of

major assistance to America's automotive repairmen in solving the problems that will arise during this emergency period. How many cars has he to service? What makes? What areas buy the most service and use the most parts? What role will equipment and tools play?

This Defense-Service Issue of MOTOR AGE was prepared to answer these and other pertinent questions. Read it thoroughly. Be prepared to solve the problems of defense service and profit from its opportunities.

Spending the Service Dollar

FOR GAS, OIL, TIRES AND PARTS



	Total United States	New England	Middle Atlantic	East North Central	West Central	South	Mountain	Pacific
Gasoline Expenditures								
Large Cities.....	\$346,708,000	\$18,599,000	\$85,181,000	\$95,023,000	\$51,322,000	\$41,254,000	\$6,214,000	\$49,014,000
Middle Cities.....	115,715,000	12,518,000	23,397,000	32,974,000	13,219,000	20,195,000	3,429,000	9,553,000
Small Cities.....	204,117,000	15,877,000	40,990,000	34,040,000	58,858,000	28,657,000	7,640,000	18,115,000
Villages and Farms.....	403,943,000	17,972,000	47,401,000	70,403,000	109,432,000	111,674,000	14,558,000	32,472,000
Oil Expenditures								
Large Cities.....	\$41,235,000	\$ 2,200,000	\$10,590,000	\$12,104,000	\$ 5,822,000	\$ 4,093,000	\$ 768,000	\$ 5,658,000
Middle Cities.....	13,381,000	1,453,000	2,715,000	3,801,000	1,777,000	2,084,000	481,000	1,070,000
Small Cities.....	24,398,000	1,934,000	5,770,000	4,803,000	5,553,000	3,145,000	1,055,000	2,128,000
Villages and Farms.....	52,987,000	2,521,000	6,378,000	9,607,000	15,972,000	12,227,000	1,937,000	4,345,000
Tires and Tube Expenditures								
Large Cities.....	\$ 33,832,000	\$ 1,609,000	\$ 7,542,000	\$ 8,522,000	\$ 4,810,000	\$ 4,824,000	\$ 705,000	\$ 5,820,000
Middle Cities.....	13,844,000	1,539,000	3,706,000	2,933,000	1,664,000	2,383,000	390,000	1,229,000
Small Cities.....	25,436,000	1,560,000	6,111,000	5,135,000	5,107,000	3,939,000	985,000	2,159,000
Villages and Farms.....	60,961,000	2,345,000	7,051,000	11,103,000	17,459,000	15,622,000	2,030,000	5,351,000
Repairs, Replacements, Services and Accessory Expenditures								
Large Cities.....	\$ 63,735,000	\$ 2,968,000	\$17,037,000	\$15,568,000	\$10,060,000	\$ 5,934,000	\$1,313,000	\$10,658,000
Middle Cities.....	18,502,000	2,610,000	3,443,000	4,842,000	2,041,000	2,513,000	739,000	2,314,000
Small Cities.....	30,909,000	2,437,000	6,370,000	5,294,000	7,922,000	3,440,000	1,518,000	3,928,000
Villages and Farms.....	76,402,000	2,736,000	8,979,000	13,835,000	26,370,000	14,843,000	2,722,000	6,917,000

Data courtesy Farm Journal

Fourteen Years of Engine Trends

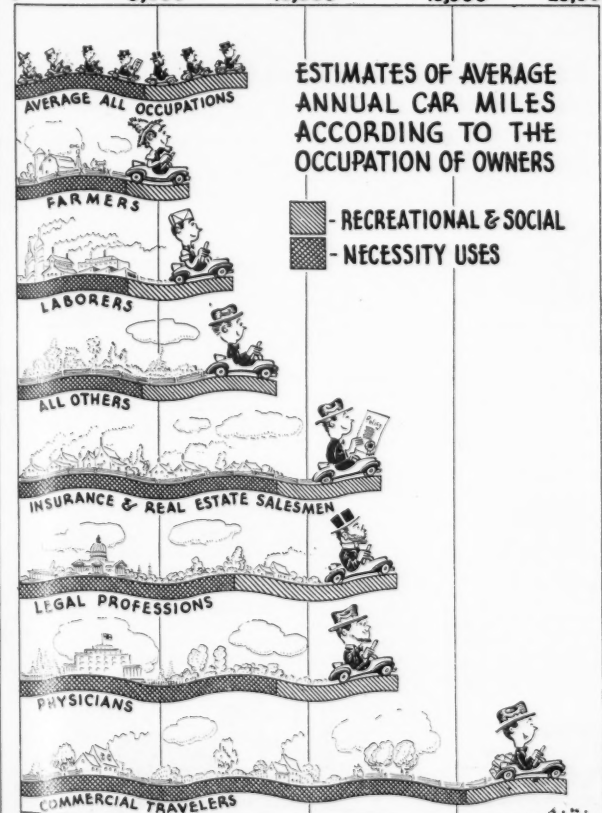
(Based on Number of Models Offered)

Hp. Per Cu. In. of Displacement		Average Compression Ratio		Average B.M.E.P. At Maximum Hp. (Lb. per Sq. In.)		Bore, Stroke, Displacement		Piston Displ. (Cu. In.)
Year	Value	Year	Value	Year	Value	Bore (Inches)	Stroke (Inches)	Value
1927	256	1927	4.55	1927	74.5	3.26	4.67	254.9
1928	276	1928	4.86	1928	76.2	3.27	4.58	257.7
1929	306	1929	4.99	1929	80.6	3.27	4.57	261.3
1930	331	1930	5.15	1930	82.7	3.26	4.51	264.6
1931	344	1931	5.23	1931	84.3	3.21	4.45	273.0
1932	353	1932	5.29	1932	86.2	3.26	4.41	283.9
1933	376	1933	5.57	1933	88.5	3.23	4.40	284.1
1934	388	1934	5.72	1934	90.1	3.24	4.40	289.2
1935	398	1935	5.98	1935	90.2	3.23	4.39	271.4
1936	411	1936	6.14	1936	92.3	3.39	4.32	267.9
1937	417	1937	6.25	1937	93.1	3.25	4.31	277.6
1938	412	1938	6.32	1938	91.2	3.25	4.27	271.1
1939	415	1939	6.32	1939	92.7	3.24	4.23	255.3
1940	426	1940	6.41	1940	93.9	3.25	4.17	254.0
1941	431	1941	6.63	1941	96.7	3.26	4.15	252.1

Average Piston Speeds (Feet per Min.)	Displacement per Cylinder (Cu. In.)	Average Number of Cylinders	Average R.P.M.	Average Brake Horsepower
1927 2150	1927 39.5	1927 6.45	1927 2740	1927 65.8
1928 2210	1928 39.1	1928 6.59	1928 2860	1928 70.9
1929 2310	1929 38.9	1929 6.71	1929 3063	1929 81.6
1930 2380	1930 37.6	1930 7.04	1930 3170	1930 87.6
1931 2395	1931 36.8	1931 7.49	1931 3230	1931 95.0
1932 2390	1932 36.7	1932 7.78	1932 3250	1932 101.0
1933 2463	1933 36.0	1933 7.88	1933 3360	1933 106.5
1934 2508	1934 36.2	1934 7.97	1934 3420	1934 112.5
1935 2535	1935 36.1	1935 7.51	1935 3480	1935 109.6
1936 2498	1936 35.6	1936 7.50	1936 3487	1936 110.1
1937 2554	1937 35.8	1937 7.74	1937 3556	1937 115.9
1938 2545	1938 35.7	1938 7.60	1938 3576	1938 111.7
1939 2498	1939 35.1	1939 7.28	1939 3543	1939 105.9
1940 2490	1940 35.0	1940 7.25	1940 3580	1940 107.9
1941 2492	1941 35.2	1941 7.15	1941 3603	1941 110.9

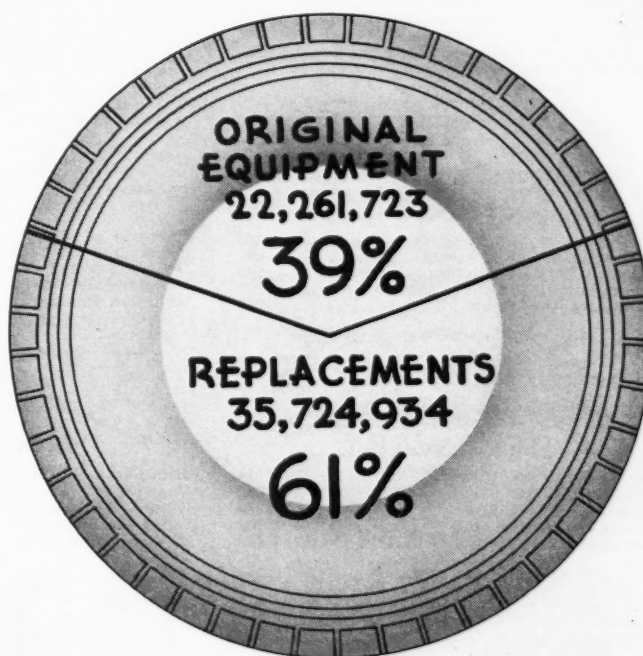
KNOW HOW FAR YOUR CUSTOMERS DRIVE

0 5,000 10,000 15,000 20,000



Replacements Are The Big Tire Market

(1940 Production of Casings for Domestic Use)



Source, Rubber Mfrs. Assn.

BIDDING FOR THE SERVICE DOLLAR OF

In this count of automotive outlets, you will find the average number of cars



ALABAMA

Number of Wholesalers.....	84
Passenger Car Dealers.....	393
Dealer Service Shops.....	372
Independent Service Shops.....	283
Vehicles Per Shop.....	493



ARIZONA

Number of Wholesalers.....	32
Passenger Car Dealers.....	173
Dealer Service Shops.....	176
Independent Service Shops.....	168
Vehicles Per Shop.....	392



ARKANSAS

Number of Wholesalers.....	87
Passenger Car Dealers.....	374
Dealer Service Shops.....	368
Independent Service Shops.....	319
Vehicles Per Shop.....	368



CALIFORNIA

Number of Wholesalers.....	525
Passenger Car Dealers.....	1,934
Dealer Service Shops.....	1,748
Independent Service Shops.....	5,311
Vehicles Per Shop.....	382



COLORADO

Number of Wholesalers.....	73
Passenger Car Dealers.....	452
Dealer Service Shops.....	447
Independent Service Shops.....	486
Vehicles Per Shop.....	377



CONNECTICUT

Number of Wholesalers.....	103
Passenger Car Dealers.....	597
Dealer Service Shops.....	593
Independent Service Shops.....	694
Vehicles Per Shop.....	393



DELAWARE

Number of Wholesalers.....	14
Passenger Car Dealers.....	68
Dealer Service Shops.....	69
Independent Service Shops.....	102
Vehicles Per Shop.....	412



DIST. OF COLUMBIA

Number of Wholesalers.....	26
Passenger Car Dealers.....	84
Dealer Service Shops.....	82
Independent Service Shops.....	139
Vehicles Per Shop.....	812



FLORIDA

Number of Wholesalers.....	110
Passenger Car Dealers.....	474
Dealer Service Shops.....	457
Independent Service Shops.....	495
Vehicles Per Shop.....	520



GEORGIA

Number of Wholesalers.....	103
Passenger Car Dealers.....	559
Dealer Service Shops.....	531
Independent Service Shops.....	290
Vehicles Per Shop.....	618



IDAHO

Number of Wholesalers.....	32
Passenger Car Dealers.....	347
Dealer Service Shops.....	340
Independent Service Shops.....	181
Vehicles Per Shop.....	310



ILLINOIS

Number of Wholesalers.....	414
Passenger Car Dealers.....	2,477
Dealer Service Shops.....	2,356
Independent Service Shops.....	2,929
Vehicles Per Shop.....	366



INDIANA

Number of Wholesalers.....	208
Passenger Car Dealers.....	1,230
Dealer Service Shops.....	1,169
Independent Service Shops.....	1,253
Vehicles Per Shop.....	414



IOWA

Number of Wholesalers.....	169
Passenger Car Dealers.....	1,433
Dealer Service Shops.....	1,328
Independent Service Shops.....	1,288
Vehicles Per Shop.....	302



KANSAS

Number of Wholesalers.....	137
Passenger Car Dealers.....	1,058
Dealer Service Shops.....	1,015
Independent Service Shops.....	932
Vehicles Per Shop.....	299



KENTUCKY

Number of Wholesalers.....	105
Passenger Car Dealers.....	600
Dealer Service Shops.....	594
Independent Service Shops.....	456
Vehicles Per Shop.....	432



LOUISIANA

Number of Wholesalers.....	75
Passenger Car Dealers.....	382
Dealer Service Shops.....	359
Independent Service Shops.....	282
Vehicles Per Shop.....	590



MAINE

Number of Wholesalers.....	49
Passenger Car Dealers.....	397
Dealer Service Shops.....	373
Independent Service Shops.....	466
Vehicles Per Shop.....	241



MARYLAND

Number of Wholesalers.....	84
Passenger Car Dealers.....	479
Dealer Service Shops.....	468
Independent Service Shops.....	520
Vehicles Per Shop.....	451



MASSACHUSETTS

Number of Wholesalers.....	234
Passenger Car Dealers.....	1,124
Dealer Service Shops.....	1,087
Independent Service Shops.....	2,325
Vehicles Per Shop.....	389



MICHIGAN

Number of Wholesalers.....	245
Passenger Car Dealers.....	1,775
Dealer Service Shops.....	1,742
Independent Service Shops.....	1,851
Vehicles Per Shop.....	332



MINNESOTA

Number of Wholesalers.....	127
Passenger Car Dealers.....	1,438
Dealer Service Shops.....	1,376
Independent Service Shops.....	1,767
Vehicles Per Shop.....	277



MISSISSIPPI

Number of Wholesalers.....	70
Passenger Car Dealers.....	400
Dealer Service Shops.....	409
Independent Service Shops.....	192
Vehicles Per Shop.....	415



MISSOURI

Number of Wholesalers.....	208
Passenger Car Dealers.....	1,055
Dealer Service Shops.....	1,033
Independent Service Shops.....	1,468
Vehicles Per Shop.....	370

THE CAR OWNER

per shop in your state



MONTANA

Number of Wholesalers.....	47
Passenger Car Dealers.....	380
Dealer Service Shops.....	381
Independent Service Shops.....	650
Vehicles Per Shop.....	293



NEBRASKA

Number of Wholesalers.....	96
Passenger Car Dealers.....	713
Dealer Service Shops.....	692
Independent Service Shops.....	805
Vehicles Per Shop.....	275



NEVADA

Number of Wholesalers.....	10
Passenger Car Dealers.....	111
Dealer Service Shops.....	109
Independent Service Shops.....	94
Vehicles Per Shop.....	167



NEW HAMPSHIRE

Number of Wholesalers.....	25
Passenger Car Dealers.....	233
Dealer Service Shops.....	217
Independent Service Shops.....	271
Vehicles Per Shop.....	267



NEW JERSEY

Number of Wholesalers.....	192
Passenger Car Dealers.....	1,045
Dealer Service Shops.....	1,009
Independent Service Shops.....	1,837
Vehicles Per Shop.....	378



NEW MEXICO

Number of Wholesalers.....	32
Passenger Car Dealers.....	178
Dealer Service Shops.....	153
Independent Service Shops.....	140
Vehicles Per Shop.....	432



NEW YORK

Number of Wholesalers.....	541
Passenger Car Dealers.....	2,756
Dealer Service Shops.....	2,639
Independent Service Shops.....	7,919
Vehicles Per Shop.....	343



NORTH CAROLINA

Number of Wholesalers.....	130
Passenger Car Dealers.....	666
Dealer Service Shops.....	668
Independent Service Shops.....	497
Vehicles Per Shop.....	507



NORTH DAKOTA

Number of Wholesalers.....	30
Passenger Car Dealers.....	530
Dealer Service Shops.....	530
Independent Service Shops.....	482
Vehicles Per Shop.....	180



OHIO

Number of Wholesalers.....	379
Passenger Car Dealers.....	2,280
Dealer Service Shops.....	2,114
Independent Service Shops.....	2,448
Vehicles Per Shop.....	424



OKLAHOMA

Number of Wholesalers.....	134
Passenger Car Dealers.....	685
Dealer Service Shops.....	708
Independent Service Shops.....	780
Vehicles Per Shop.....	385



OREGON

Number of Wholesalers.....	83
Passenger Car Dealers.....	457
Dealer Service Shops.....	437
Independent Service Shops.....	890
Vehicles Per Shop.....	296



PENNSYLVANIA

Number of Wholesalers.....	436
Passenger Car Dealers.....	3,057
Dealer Service Shops.....	2,976
Independent Service Shops.....	3,976
Vehicles Per Shop.....	320



RHODE ISLAND

Number of Wholesalers.....	29
Passenger Car Dealers.....	156
Dealer Service Shops.....	152
Independent Service Shops.....	229
Vehicles Per Shop.....	496



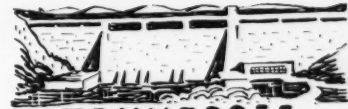
SOUTH CAROLINA

Number of Wholesalers.....	57
Passenger Car Dealers.....	363
Dealer Service Shops.....	341
Independent Service Shops.....	232
Vehicles Per Shop.....	545



SOUTH DAKOTA

Number of Wholesalers.....	32
Passenger Car Dealers.....	415
Dealer Service Shops.....	388
Independent Service Shops.....	335
Vehicles Per Shop.....	270



TENNESSEE

Number of Wholesalers.....	108
Passenger Car Dealers.....	465
Dealer Service Shops.....	413
Independent Service Shops.....	391
Vehicles Per Shop.....	524



TEXAS

Number of Wholesalers.....	362
Passenger Car Dealers.....	1,881
Dealer Service Shops.....	1,844
Independent Service Shops.....	2,658
Vehicles Per Shop.....	376



UTAH

Number of Wholesalers.....	42
Passenger Car Dealers.....	199
Dealer Service Shops.....	181
Independent Service Shops.....	228
Vehicles Per Shop.....	345



VERMONT

Number of Wholesalers.....	27
Passenger Car Dealers.....	183
Dealer Service Shops.....	168
Independent Service Shops.....	331
Vehicles Per Shop.....	187



VIRGINIA

Number of Wholesalers.....	86
Passenger Car Dealers.....	696
Dealer Service Shops.....	663
Independent Service Shops.....	687
Vehicles Per Shop.....	362



WASHINGTON

Number of Wholesalers.....	135
Passenger Car Dealers.....	731
Dealer Service Shops.....	677
Independent Service Shops.....	1,271
Vehicles Per Shop.....	289



WEST VIRGINIA

Number of Wholesalers.....	80
Passenger Car Dealers.....	522
Dealer Service Shops.....	489
Independent Service Shops.....	363
Vehicles Per Shop.....	346



WISCONSIN

Number of Wholesalers.....	144
Passenger Car Dealers.....	1,619
Dealer Service Shops.....	1,569
Independent Service Shops.....	1,520
Vehicles Per Shop.....	291



WYOMING

Number of Wholesalers.....	24
Passenger Car Dealers.....	209
Dealer Service Shops.....	189
Independent Service Shops.....	134
Vehicles Per Shop.....	266

SPEED DEFENSE SERVICE WITH EQUIPMENT • PARTS • HAND TOOLS

ABOUT the most valuable commodity in a country that's stripping down for a finish fight with aggression is time. It's no less valuable to service shops that have to keep the country's automobiles rolling under conditions that differ only theoretically from war. The shop that is going to fare best during the defense emergency is the one that does the best job of time saving.

Severe curtailment of new-car production and the increased use of existing automobiles have combined to produce an unprecedented volume of service business. Business is so good for the vast majority of shops that, in ordinary times, the operators would be tossing their caps into the air. Today the situation creates almost as many problems as it solves, and the first of these problems is handling the increased volume.

Quarters cannot be enlarged because new building has been restricted; the working force cannot be increased because trained mechanics are not to be had. In fact, hundreds of shops have been left short-handed by the drain of the draft and defense industries on their manpower. The remaining way to turn out a greater volume of work is to spend less time on each job.

This cannot be done at the expense of quality. Customers may demand more work but that does not mean they are going to like sloppy work. On the contrary, customers will be driving cars farther and longer than usual and repairs will be expected to hold up longer and provide increased economy of operation.

There are three important ways in which a shop can save time. The

first is to use the proper hand tools, the second to employ as much testing and repair equipment as possible, and the third to install new parts whenever advisable.

It has been shown repeatedly that the proper hand tool can make the difference between profit and loss on a repair job, simply because the job can be done more quickly with the right tool. Regardless of

how many tools a mechanic may have, many of them are still inclined to make a tool do jobs for which it was never intended. If they are going to save time, they are going to need special tools for special jobs.

Dealers heretofore have always depended for a large percentage of shop work on the line of cars they sold. Now that they find it neces-



**Faced by labor and material
scarcity, shops need every
aid to faster, better work**

By J. EDWARD FORD



sary to lean more heavily on service, their shops will service and repair a greater variety of makes. They will need hand tools designed especially for different cars.

Testing equipment and power tools are more important during the emergency than ever before. The testing equipment saves time—and arguments—in diagnosing car ills. Power tools make it possible to produce more work with fewer mechanics. These are vital considerations at a time when skilled men are next to impossible to obtain.

Furthermore, the shop that lacks a full line of repair equipment may be due for a surprise when it follows its usual practice of sending work to the jobber. A jobber's shop is no better off than the repair shop when it comes to labor shortage; and a time will come, unless the trend is reversed, when valve grinding, brake-drum turning, valve refacing, generator and starter work, and so on will require far longer than they do now. Shops must be able to offer customers

faster and more complete service which can only be performed by utilizing modern equipment to the fullest extent.

The use of new parts contributes importantly to saving time. It may seem like saving time to let a car go out without replacing doubtful parts but in the long run it can be a waste of time. Taking a chance on making the old part do is inviting comebacks and probable future breakdowns which cost the owner more in the long run. It should take little selling to convince customers that the present supply of parts will not be maintained and that replacing a part when it finally fails may be difficult. As long as replacement parts can be obtained, the shop that installs them is assuring the car owner against early repetition of the trouble.

With defense taking so much material, adequate production of hand tools, equipment, and parts is debatable. Equipment and tools do not enjoy priority ratings. Parts for passenger cars and light trucks have been given an A-10 priority

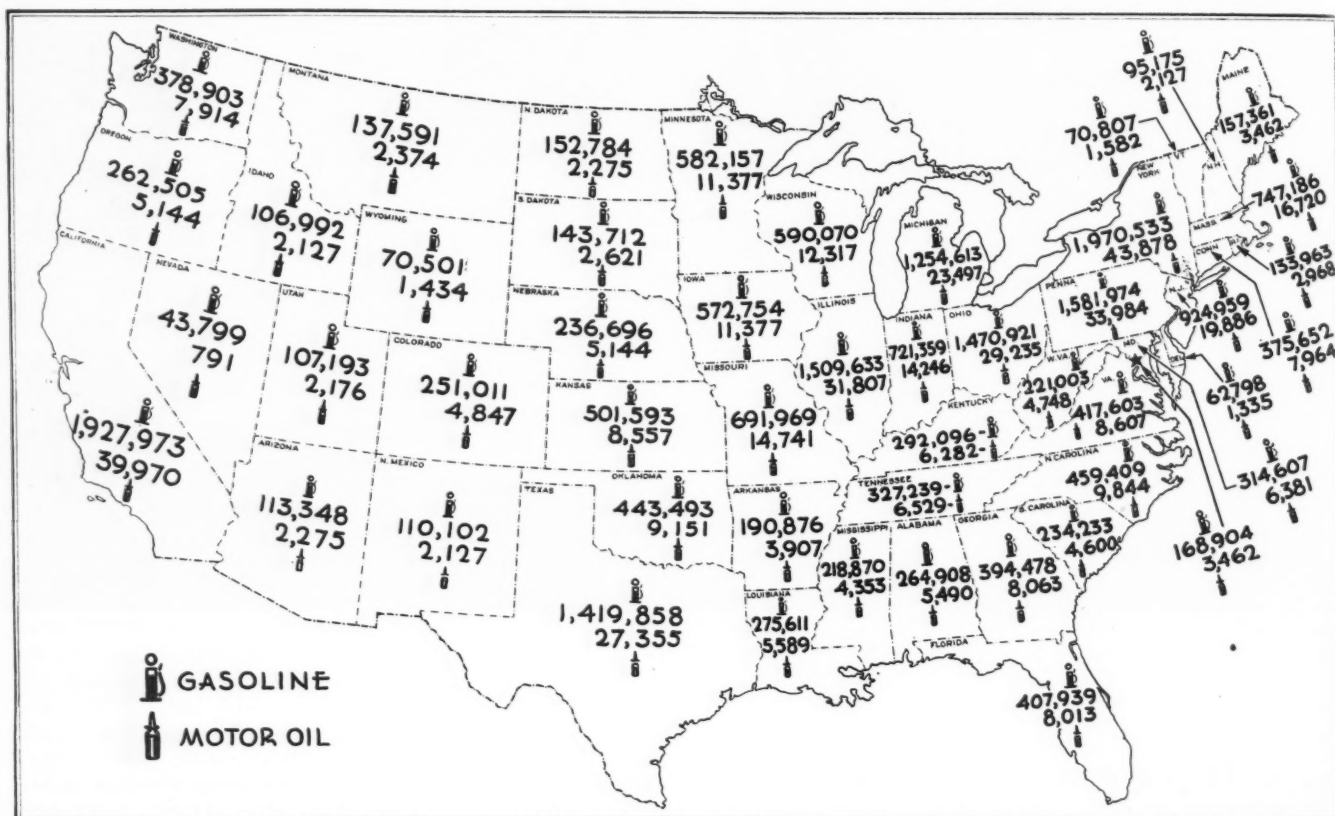
rating, but this is no absolute guarantee that, after Army, Navy and lend-lease requirements have been filled, material will be available to make automotive parts. Already jobbers are finding it hard to get delivery on many items of parts and equipment.

Servicemen at the moment can obtain from one source of supply or another most of the tools, parts, equipment, and supplies they need. This is true because most jobbers have been foresighted enough to build up their inventories. Here or there a jobber may lack a certain size of piston ring or a certain type of equipment. However, a jobber down the street may have these items, even if he is without several others.

This situation is due, possibly, to several factors. The manufacturer represented by one jobber may have been luckier or cannier than other suppliers in stocking material. Or the jobber himself may have gauged his market more accurately and ordered enough of
(Continued on page 62)

Gasoline and Oil Consumption in Your State

(1940 Consumption in
thousands of gallons)



1940 U. S. Registrations by States

	Passenger Cars	Trucks	Total (Including Buses) 1940	Per Cent Change from 1939	Persons Per Motor Vehicle		Passenger Cars	Trucks	Total (Including Buses) 1940	Per Cent Change from 1939	Persons Per Motor Vehicle
Alabama (1)	263,494	58,707	322,812	+ 5.1	8.77	Nebraska	346,000	66,300	412,480	+ 0.5	3.19
Arizona	110,000	24,500	134,850	+ 2.5	3.70	Nevada	26,507	6,571	33,078	+ 11.5	3.34
Arkansas	187,545	64,199	252,844	+ 5.1	7.70	New Hampshire	104,980	25,399	130,379	+ 2.2	3.76
California	2,374,507	(3)326,998	2,701,505	+ 4.0	2.65	New Jersey	933,699	136,887	1,070,586	+ 5.6	3.86
Colorado	321,810	30,298	352,108	+ 2.6	3.19	New Mexico	95,257	30,090	125,665	+ 4.0	4.19
Connecticut	410,414	74,456	485,907	+ 7.2	3.51	New York	2,392,008	317,507	2,718,323	+ 1.1	4.95
Delaware	59,424	11,030	70,454	+ 3.5	3.78	North Carolina	504,200	86,200	590,400	+ 5.8	6.03
Dist. of Columbia	164,400	13,500	177,900	+ 9.1	3.69	North Dakota	145,746	37,019	182,765	+ 3.2	3.51
Florida	413,000	79,000	492,000	+ 8.2	3.82	Ohio	1,750,000	186,000	1,936,000	+ 2.8	3.56
Georgia	413,061	91,321	504,382	+ 7.2	6.14	Oklahoma	468,957	103,391	572,348	+ 3.0	4.07
Idaho	129,360	33,382	162,742	+ 6.3	3.22	Oregon	325,130	67,756	392,886	+ 6.6	2.76
Illinois	1,707,512	228,889	1,936,401	+ 4.1	4.07	Pennsylvania	1,859,394	263,112	2,122,506	+ 1.4	4.65
Indiana	872,000	130,000	1,002,000	+ 5.0	3.41	Rhode Island	160,138	20,743	180,881	+ 3.8	
Iowa	689,307	101,244	790,551	+ 3.6	3.21	South Carolina	272,303	39,070	311,373	+ 4.0	6.08
Kansas	480,008	102,665	582,673	+ 1.6	3.09	South Dakota	163,173	32,295	195,468	+ 3.3	3.28
Kentucky	379,055	75,096	454,151	+ 3.8	6.26	Tennessee	356,400	65,000	421,400	+ 0.4	6.91
Louisiana	284,362	88,973	373,280	+ 7.0	6.24	Texas	1,342,861	350,208	1,693,069	+ 4.9	3.78
Maine	160,000	42,000	202,000	+ 1.5	4.19	Utah	117,119	23,584	140,703	+ 9.0	3.89
Maryland	385,041	60,044	445,085	+ 5.6	4.08	Vermont	83,922	9,628	93,550	+ 3.2	3.83
Massachusetts	790,102	109,462	900,564	+ 3.7	4.77	Virginia	413,340	74,720	488,060	+ 8.0	5.47
Michigan	1,077,534	117,500	1,195,034	+ 6.5	4.39	Washington	476,000	88,000	564,000	+ 5.3	3.07
Minnesota	746,500	124,602	871,102	+ 4.0	3.20	West Virginia	242,886	51,414	294,300	+ 3.0	6.44
Mississippi	190,370	58,875	249,245	+ 2.2	8.74	Wisconsin	748,613	150,000	898,613	+ 6.5	3.48
Missouri	768,345	152,924	921,269	+ 5.0	4.10	Wyoming	66,984	19,062	86,046	+ 3.1	2.91
Montana	143,068	47,964	191,032	+ 6.0	2.92						
						Total	25,915,836	4,497,595	31,413,431	+ 4.0	4.18

(1) For fiscal year ending September 30.
(2) For fiscal year ending October 31.

(3) Includes approximately 130,000 light commercial vehicles registered as passenger cars during 1940, and 127,030 during 1939.

Growth of the Service Business

(Each increase in car and truck registration has meant a greater demand for maintenance and service.)

	Passenger Cars	Trucks and Buses	Total Motor Vehicles	Per Cent Increase
1895	4		4	
1896	16		16	
1897	90		90	
1898	800		800	
1899	3,200		3,200	
1900	8,000		8,000	
1901	14,800		14,800	
1902	23,000		23,000	
1903	32,920		32,920	
1904	54,590	410	55,000	
1905	77,400	600	78,000	42
1906	105,900	1,100	107,000	37
1907	140,300	1,700	142,000	33
1908	194,400	3,100	197,500	39
1909	305,950	6,050	312,000	58
1910	458,500	10,000	468,500	50
1911	619,500	20,000	639,500	36
1912	902,600	41,400	944,000	48
1913	1,194,262	63,800	1,258,062	33
1914	1,625,739	85,600	1,711,339	36
1915	2,309,666	136,000	2,445,666	43
1916	3,297,996	215,000	3,512,996	44
1917	4,657,340	326,000	4,983,340	42
1918	5,621,617	525,000	6,146,617	23
1919	6,771,074	794,372	7,565,446	23
1920	8,225,859	1,006,082	9,231,941	22
1921	9,346,195	1,118,520	10,464,715	13
1922	10,864,128	1,375,725	12,239,853	17
1923	13,479,608	1,612,569	15,092,177	23
1924	15,460,649	2,134,724	17,595,373	17
1925	17,496,420	2,440,854	19,937,274	13
1926	19,237,171	2,764,222	22,001,393	10
1927	20,219,224	2,914,019	23,133,243	5
1928	21,379,125	3,113,999	24,493,124	6
1929	23,121,589	3,379,854	26,501,443	8
1930	23,183,241	3,473,831	26,657,072	0.2
1931*	22,567,381	3,426,515	25,993,896	-2.5
1932*	21,139,092	3,202,730	24,341,822	-6.4
1933	20,557,493	3,292,439	23,849,932	-2.0
1934*	21,535,199	3,346,268	24,881,467	4.3
1935*	22,630,715	3,595,042	26,225,757	5.2
1936*	24,161,820	3,929,889	28,091,709	7.2
1937*	25,476,786	4,172,484	29,649,270	5.6
1938*	25,031,225	4,127,390	29,158,615	-1.7
1939*	25,854,022	4,440,206	30,294,228	+4.0
1940*	28,915,836	4,553,051	31,468,887	+4.0

* Automotive Industries count, all others Bureau of Public Roads.

The Field for Truck Service

(Factory Sales by Capacities)

U. S. and Canada	1/4 or less	1 and less than 1 1/2	1 1/2 and less than 2	2 and less than 2 1/2	2 1/2 and less than 3 1/2	3 1/2 and less than 5	5 and over	Special types†	Total
1932	79,127	1,618	144,113	7,620	6,006	2,689	2,202	1,910	245,285
Per Cent	32.3	.6	58.8	3.1	2.4	1.1	.9	.8	100%
1933	99,028	893	228,238	15,866	7,728	2,859	1,331	2,605	358,548
Per Cent	27.6	.4	63.7	4.4	2.2	.8	.5	.7	100
1934	172,089	2,341	376,475	25,995	11,136	4,752	2,869	3,740	599,397
Per Cent	28.6	.4	62.9	4.3	1.9	.8	.5	.6	100
1935	249,957	2,259	420,597	28,950	10,465	3,612	3,824	*12,341	732,005
Per Cent	34.1	.3	57.5	4.0	1.4	.5	5.567	*15,846	818,377
1936	316,208	9,686	423,503	30,637	12,309	4,621	5,567	*15,846	818,377
Per Cent	38.6	1.1	52.0	3.7	1.5	.5	7	*1.9	100
1937	395,157	21,580	441,156	30,431	18,971	6,170	9,248	*24,789	947,502
Per Cent	41.7	2.3	46.6	3.2	2.0	.6	1.0	*2.6	100
1938	194,827	30,951	246,200	18,375	9,954	4,539	5,820	*19,759	530,425
Per Cent	36.7	5.8	46.4	3.5	1.9	.9	1.1	*3.7	100
1939	292,768	29,725	344,199	26,701	18,801	7,619	7,365	*20,375	757,553
Per Cent	38.6	3.9	45.5	3.5	2.5	1.0	1.0	*4.0	100

U. S. Only	1935	1936	1937	1938	1939	1940
237,411	2,158	401,202	24,673	9,860	3,510	3,776
Per Cent	34.2	.3	57.8	3.6	1.4	.5
1936	301,861	9,404	409,438	26,442	11,788	4,573
Per Cent	38.4	1.2	52.2	3.4	1.5	.6
1937	373,844	20,101	423,901	17,683	18,147	6,057
Per Cent	41.9	2.3	47.4	2.0	2.0	.7
1938	177,320	28,101	234,486	9,065	9,144	4,643
Per Cent	36.3	5.7	48.0	1.9	1.0	.5
1939	273,904	26,519	333,235	15,604	16,789	7,542
Per Cent	38.5	3.7	45.9	2.2	2.4	1.1
1940	311,554	30,192	328,090	29,695	19,141	8,614
Per Cent	40.1	3.9	42.2	3.8	2.5	1.1

*—Including stations wagons. †—Includes buses, fire apparatus, street sweepers, and other special purpose vehicles which have been built by motor vehicle manufacturers specifically for the purpose, but excludes those vehicles converted into these types after having been shipped from the factory.

Data from Automobile Manufacturers Association.

Your Market for Accessories and Replacement Parts

(U. S. Sales 1939)

Item	Units Sold 1939
Breaker Points:	
Screws	10,661,306
Arms	12,443,414
Carburetors (new and rebuilt) ¹	895,564
Cylinder Heads	653,623
Cylinder-head gaskets	17,762,626
Engines, rebuilt	201,529
Fan Belts	11,090,840
Fuel Pumps (new and rebuilt) ¹	1,536,572
Hub Caps	4,146,775
Ignition Coils	1,970,131
Light Bulbs (6- and 12-volt)	82,799,688
Mufflers	5,028,258
Pistons:	
Cast Iron	1,653,698
Aluminum	6,979,094
Piston Rings:	
Oil-type	73,162,115
Compression	93,144,266
Not reported by type	4,372,793
Spark Plugs	78,200,527
Springs for motor vehicle support:	
Helical	71,350
Flat-leaf assemblies	1,559,699
Main leaves only	864,963
Storage batteries	12,352,256
Valves (engine)	9,554,001
Radio sets ²	1,359,876
Heaters ²	3,216,617

(¹)—Data for new units and rebuilt units are combined to avoid disclosing the operations of individual organizations.

(²)—Includes units installed by vehicle manufacturers on cars for U. S. market.



Average Octane Rating of Motor Fuel

	Regular-Grade Motor Fuel	Premium-Grade Motor Fuel
1941	74	80
1940	73	79
1939	73	80
1938	72	79
1937	70	77
1936	69	76
1935	69	75
1934	69	75
1933	65	76
1932	61	74
1931	60	72
1927	50	



Passenger Car Production by Cylinders

(U. S. and Canada)

	Per Cent Fours	Per Cent Sixes	Per Cent Eights	Per Cent Twelves and Sixteens	Total
1926	64.0	34.0	2.0		100.0
1927	49.7	47.1	3.2		100.0
1928	50.7	45.0	4.3		100.0
1929	40.7	54.3	5.0		100.0
1930	44.5	43.6	11.8	0.1	100.0
1931	33.3	52.0	14.5	0.2	100.0
1932	17.9	50.4	31.1	0.6	100.0
1933	3.2	61.8	34.7	0.3	100.0
1934	1.2	59.8	38.8	0.2	100.0
1935	0.5	59.5	39.4	0.2	100.0
1936	0.5	66.5	32.4	0.6	100.0
1937	1.7	63.8	33.7	0.8	100.0
1938	0.8	62.8	35.4	1.0	100.0
1939	0.6	61.9	36.7	0.8	100.0
1940	0.7	65.3	33.4	0.6	100.0



By **BILL TOBOLDT**

EVERYONE is making guesses. How long will the emergency last? How soon will we send an army abroad? But it is no guess that the longer the emergency lasts, the more economy of operation will be demanded by car owners, and it's up to the repairmen of America to do their bit for defense and meet those demands for economy as much as possible. By meeting those demands, the repairman will be aiding defense by conserving such strategic material as gasoline, oil, rubber, aluminum, and other metals and materials.

It is true that it is extremely doubtful that the American motor-

ing public will be forced to limit fuel consumption to eight gallons of gasoline per month as the English are doing. But most people are predicting higher gasoline and parts prices, plus additional taxes. So the mechanic who can promise to save some money for the car owner in the form of better gas mileage, increased oil economy, longer tire life, and greater mileage from any part before it has to be replaced, will soon find car owners beating that proverbial path to his repair shop door.

Taking up the subject of fuel economy first, every mechanic knows that the first step in getting



more miles per gallon is a good tune-up job. But, before doing any tuning, compression has to be checked and, if it is low or varies among the different cylinders, reconditioning is called for. In some instances, this may mean a ring job, in others only a carbon and valve job will be found necessary.

To get maximum gas mileage, rings must have a minimum of drag and blow-by. In connection with the installation of new rings, some mechanics expect to get 100 per cent operation from a set of rings, regardless of the condition of the cylinder walls. If the cylinder taper exceeds 0.015 in., the cylinders should be reconditioned. Many mechanics do a partial honing job every time they install rings. Such a job removes very little metal from the cylinders, simply "breaking the glaze." New pistons are not needed on such jobs, the old ones being expanded or tin-plated. Rings seat more quickly, when the cylinders have been "partially honed" and the engine delivers maximum oil economy immediately.

Carbon and valve jobs are not sold frequently enough and in many cases are done in a perfunctory manner. Such work must be done with the utmost care and valve refacers and seat cutters must be accurate and in perfect condition. Otherwise, the valve or seat will be oval instead of circular and compression will be lost, valves will

TUNE-UP

FOR PERFORMANCE AND ECONOMY

**Follow this timely article's suggestions
and you can help customers save oil, gas,
and rubber during the defense emergency**

burn, and economy decrease. Particular attention must, therefore, be paid to the accuracy of the chuck on the valve refacer and the pilot on the seat cutter. After reconditioning, each valve should be checked with Prussian blue or by the pencil mark test to insure that it is making 100 per cent contact with the seat. To insure no loss of compression, gasket cement should be used when installing cylinder head gaskets.

Having brought the compression up to normal by reconditioning the valves and installing new rings if necessary, the next step is to follow through with the remainder of the tune-up job.

New points and spark plugs are always advisable when maximum gasoline mileage is desired. If the owner won't okay the additional expenditure, the points should be carefully refaced, alined and set so as to give the correct cam angle. Both vacuum and centrifugal advance must be checked to insure correct spark advance throughout the entire speed range of the engine.

When it comes to timing, the best gasoline mileage will be obtained if the spark is set up to the pinging point. Factory marks are only for average setting and do not take into consideration the variation in manifold, carburetors, valves, etc., which are found in all makes of engines.

Carburetors must be thoroughly

cleaned, and special attention should be devoted to economizers to insure that they are not leaking. On cars with excessive mileage, new jets are frequently advisable. In some instances slightly smaller jets can be used to improve fuel economy without causing engine valves to burn. Care must also be exercised in setting the float level, which should be on the low side for best economy.

Tappets should be set to the specified operating clearance after the engine has had ample time to reach operating temperature.

To obtain maximum oil economy, new rings are required and, in most cases, new engine bearings are also a necessity. On big mileage cars, it is also essential to recondition cylinder walls and install new pistons. Of equal importance is to make sure that there is no oil leaking from the engine. In this connection, it is important to check the rear main bearing and bearing seal, the camshaft rear bearing and bearing seal, rear main bearing drain, the front main bearing and bearing seal, oil pan gasket, valve cover gasket, external oil lines, valve chamber drainage. In addition some engines, such as the Chrysler, have external oil pumps which must be checked for leaks.

It is important to tighten main, rod and cylinder head nuts with a torque or tension wrench in order to avoid distortion and consequent

friction. It is also important to thoroughly clean the cooling system, particularly the water jacket so as to avoid hot spots.

The importance of regular lubrication in reducing maintenance costs and prolonging the life of parts cannot be over-stressed. This point should be emphasized when talking to car owners and an exhibit of worn parts is a big help in driving home this point.

Brake lining and brake drums will last longer if care is exercised in making the adjustments accurately. Tires will also be conserved if one brake doesn't do more braking than the others.

Tuning for economy should also include a complete check of the electrical system to insure proper charging of the starting battery and quick starting. In this way, life of the battery will be prolonged, maintenance costs will be decreased, and strategic materials will be conserved.

Tire mileage, as far as the maintenance man goes, is mostly a question of correct inflation, proper alinement and accurate balancing. Shock absorbers must also be in good condition if maximum tire life is expected. However, the mechanic should point out to the car owner that tire life drops as speed increases, and maximum tire life, greatest fuel economy and increased oil mileage are obtained at car speeds below 45 miles per hr.



THE SERVICE MARKET IN

(Cars of various makes in use according to age)

BUICK

Model	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
1941	2597	1093	1475	28277	2884	7274	1188	3640	5744	5089	1197	28256	11081	4925	3729	3124	3463	1796	5508	13118	28327	6425	2396	8144	1377
1940	1782	776	1087	14651	2276	5914	652	2290	4275	3335	987	23013	8075	4007	2813	2559	2435	1644	3163	11044	20136	5442	1474	5285	1035
1939	1429	578	899	17448	1747	3980	525	2188	3283	2387	474	16687	4033	3141	1976	1840	1869	1059	3362	7576	11644	4026	1165	4651	812
1938	979	583	512	15543	1346	3160	441	1652	2790	1681	403	12756	3890	2489	1508	1393	1317	911	2400	5738	7207	3034	549	3520	609
1937	1128	752	592	20329	2117	4506	558	1799	2934	1904	657	16168	5161	2946	2022	1885	1232	1104	2444	7324	12340	3548	691	4025	792
1936	885	562	427	16088	1646	3659	438	1346	2355	1482	56	11710	3823	2208	1677	1398	965	1000	2012	6460	7877	2923	480	3114	571
1935	358	179	179	7001	430	1103	166	386	789	597	115	4129	1968	864	582	490	309	316	1119	1946	2235	997	198	1222	122
1934	312	231	140	4904	530	1632	163	398	875	648	123	4213	1259	723	634	488	313	462	595	3055	2315	1001	189	1141	157

CADILLAC

Model	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
1941	306	201	153	5373	389	1636	202	624	1390	772	73	4980	1470	377	235	386	489	417	774	2571	3759	573	145	1134	120
1940	44	32	32	940	84	359	37	153	311	159	24	1052	324	78	48	64	93	63	88	474	608	173	18	178	22
1939	52	38	36	1464	84	350	43	130	293	131	14	1181	180	71	64	81	114	69	135	474	460	137	24	252	34
1938	41	31	19	1311	57	250	34	109	278	109	6	773	195	48	42	48	52	43	98	370	270	83	16	202	15
1937	40	45	22	1396	88	387	41	167	300	128	7	1067	190	94	39	93	71	64	125	679	413	124	10	185	6
1936	41	38	20	1536	84	337	42	143	293	105	10	1013	192	77	53	64	64	63	112	612	394	114	9	223	13
1935	9	11	2	932	23	95	19	63	67	35	7	329	86	20	17	38	19	21	61	205	88	33	3	105	2
1934	21	14	7	598	37	163	16	48	115	39	2	362	68	26	16	42	20	26	29	274	98	40	4	97	3

CHEVROLET

Model	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
1941	15185	3193	8266	72037	7785	13639	3042	7781	13687	16732	3826	64232	32989	22475	15602	14090	12825	4943	16570	24157	65048	22660	9538	34515	5086
1940	10175	2432	6230	37986	6778	10187	1624	6718	10988	12248	3732	51609	24404	18584	11879	10826	10564	4021	9344	18276	45314	19058	7151	27087	4326
1939	9353	2334	5325	37184	5891	6764	1403	4251	8623	10411	2428	38294	14454	16991	9909	8563	8562	3000	8660	15890	29047	14720	6569	21822	3179
1938	5443	1944	4150	33832	4991	4857	1175	2510	6499	6330	1942	30490	13467	15210	10252	7220	7060	2451	5870	11483	18263	15588	4783	17289	2331
1937	10937	3452	5955	52895	8503	10444	1876	4108	12776	12339	4059	49631	26619	21868	15555	11250	9646	4227	9115	23368	47842	20378	7373	23840	4322
1936	11837	3572	6395	63229	13888	10767	2137	4318	12232	13151	4691	57836	32545	25557	19207	12806	12075	4817	9568	23534	50009	24979	8521	28577	5309
1935	7435	2130	4309	43804	5897	6533	1419	2411	7304	9821	2753	31854	27297	15150	12053	8700	6461	2900	6319	15150	25340	14777	5316	17334	3298
1934	8273	2232	4279	31078	5459	6917	1288	1721	8164	9718	2503	26877	15165	13077	11074	7849	6401	3049	4792	15012	21512	12519	5946	14839	2568

Chrysler

Model	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
1941	878	637	487	15453	1455	2503	372	1443	2343	1490	405	10830	4232	1966	1394	1258	985	503	2343	4024	8008	2738	420	2907	775
1940	549	298	340	6120	884	1403	149	807	1368	820	326	5893	2612	1177	925	883	614	367	1233	2462	4894	1740	314	1828	469
1939	410	241	276	6456	589	930	117	733	1011	619	202	4789	1439	980	704	702	503	273	1028	1998	2928	1347	236	1341	348
1938	195	187	189	4820	361	608	83	458	657	323	176	2925	1185	656	526	565	388	208	642	1258	1626	960	157	979	277
1937	382	504	325	8135	983	1468	154	734	1239	779	399	7153	2736	1343	1019	1029	655	409	1151	3124	3876	2027	272	1621	590
1936	219	211	181	6396	587	805	99	457	695	446	216	3737	1540	905	608	610	297	188	655	1528	1823	1110	149	1048	416
1935	135	122	100	3619	314	501	62	243	509	308	147	2528	1046	626	423	499	171	140	557	1073	1216	827	103	720	267
1934	180	90	105	2185	296	609	46	176	458	300	81	1547	640	418	337	388	151	140	293	1084	877	558	90	565	141

DE SOTO

Model	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
1941	688	294	192	12075	628	1926	197	855	1048	863	326	7056	3815	944	851	601	538	452	1295	3093	5176	1660	185	2135	272
1940	420	187	175	4984	408	1363	88	630	658	575	274	5330	2054	578	583	436	395	292	676	1940	3204	1208	170	1311	240
1939	397	183	166	5475	399	980	80	500	638	454	199	4019	1469	572	436	454	302	249	612	1722	2218	1061	191	1497	181
1938	216	152	114	4301	281	690	59	253	401	247	110	2592	1006	394	425	285	247	172	390	1038	1281	823	116	940	122
1937	411	370	203	8101	720	1662	117	540	772	515	282	6394	2604	817	875	626	341	389	696	2142	3727	1803	149	1893	248
1936	116	243	70	6350	332	731	72	203	441	232	165	3092	1403	593	490	354	161	102	312	831	1384	797	68	839	195
1935	87	121	63	3755	187	512	44	120	273	199	107	1871	921	438	327	215	108	80	255	462	785	436	51	519	97
1934	51	64	29	1281	103	220	17	42	179	84	45	889	351	147	161	92	67	64	83	364	433	152	23	254	58

Dodge

1941	2634	736	1068	17864	1776	3844	559	2077	3456	3111	766	16466	6620	3569	2369	2196	2260	1113	3462	8021	15527	3215	931	5235	866
1940	2049	595	949	10801	1493	2854	262	1858	2975	2571	763	14552	5454	2943	2052	1910	1890	876	2376	6526	12465	3242	779	3217	768
1939	2078	566	1126	15119	1710	2541	234	2117	2700	2418	624	14091	4078	3204	1908	1884	1960	828	2262	6748	10759	3183	826	4910	673
1938	953	403	611	10238	817	1480	147	1051	1571	1045	362	7121	2559	1780	1183	1415	1261	549	1394	3710	3992	2065	375	2548	445
1937	2301	1108	1293	22314	2592	5240	349	2170	3167	2985	1014	21071	7637	3983	3257	3827	2244	1371	2764	10126	15429	5261	915	5759	981
1936	1754	1165	972	25962	2445	4124	341	2161	2852	2193	1052	19447	7407	4006	2775	3123	1996	1149	2502	8337	13568	4319	701	5168	1239
1935	923	686	652	18595	1444	2594	224	1237	1689	1311	718	10379	5416	2903	1857	2189	1126	597	1699	4491	6036	2649	513	3297	790
1934	566	335	388	7301	708	1654	109	497	1147	872	352	5419	2110	1231	980	1226	666	439	823	3390	3028	1144	368	1292	414

YOUR STATE

BUICK

Model	Neb.	Nev.	N. H.	N. J.	N. M.	N. Y.	N. C.	N. D.	Ohio	Okla.	Ore.	Pa.	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W. Va.	Wis.	Wyo.
1941	2372	404	1360	15883	866	41318	4672	675	24837	3492	4007	29801	2196	2343	816	3804	15672	1157	1029	5016	5597	2508	8448	829
1940	1736	374	821	12918	682	37167	2957	487	17388	2560	2595	18394	1211	1126	683	2534	10260	834	825	3571	3284	2535	6293	680
1939	1205	225	879	8656	540	24765	2439	427	11206	2310	1681	14484	1415	1208	525	1902	7384	490	630	2529	2355	1476	4410	501
1938	956	209	638	7990	451	20849	2029	319	7452	1941	1351	12160	1014	821	411	1343	6003	438	464	2008	1820	1112	3162	358
1937	1257	282	757	10739	575	25863	2041	238	12937	2462	2076	15375	1226	963	524	1498	6280	631	516	2092	2967	1435	4490	455
1936	1140	194	713	8276	406	21421	1520	243	8599	1920	1344	12044	1097	700	536	1136	4806	459	538	1636	1795	1011	3021	367
1935	422	35	263	2663	174	6746	711	144	2769	731	280	4588	390	290	201	432	1862	138	139	657	447	267	1195	126
1934	369	62	326	3825	154	8450	748	101	3083	711	381	4475	614	274	161	409	1914	188	212	591	677	292	1110	124

CADILLAC

1941	203	129	163	2838	85	8079	582	36	3158	493	371	3959	407	259	48	511	2344	167	112	544	547	307	910	58
1940	29	40	29	610	18	1882	94	5	626	77	71	625	61	29	5	97	555	36	23	85	109	72	238	3
1939	22	35	40	691	28	1906	102	5	717	131	74	752	116	37	7	95	557	19	17	94	94	47	220	9
1938	19	19	43	511	16	1311	66	8	446	76	53	587	85	14	3	62	342	17	8	71	74	31	132	6
1937	22	25	36	765	17	2079	87	5	716	104	65	715	108	33	1	68	351	23	21	97	127	60	189	8
1936	28	21	38	767	18	1775	85	5	664	116	77	742	119	19	8	63	298	18	23	75	112	46	147	12
1935	10	3	18	256	2	552	20	1	194	35	14	330	28	8	.....	24	84	8	3	16	30	10	48	2
1934	12	7	8	312	5	734	21	3	212	29	23	279	41	5	.....	15	102	8	12	16	50	9	52	.....

CHEVROLET

1941	10323	1020	3387	29986	3201	72774	19768	4390	67609	16332	11115	70430	5230	11113	3787	19317	55332	3376	2506	19743	14391	9455	24057	2627
1940	7153	788	2022	23886	2979	59145	13881	3173	48187	13021	8292	41518	2904	6094	3088	13093	41392	2943	1820	14264	9743	9367	18619	1914
1939	6465	675	2213	16820	2448	41282	13516	2601	30526	11313	5817	34075	3036	7313	2982	9931	32645	2053	1229	11348	7684	5684	13738	1785
1938	6248	540	1767	13793	2125	32876	10323	2704	21584	9462	4755	28526	2090	4734	2607	6947	29905	1818	1084	8418	5782	4318	12143	1402
1937	9273	910	3049	23607	3132	57584	17807	3320	52246	15126	9294	45568	4187	8604	3985	10953	42242	3616	1938	14863	13113	9021	21221	2242
1936	12001	969	3228	25204	3577	62309	16766	3753	59954	17239	10841	51905	4514	8742	4871	12689	52562	4002	2127	16243	14231	10038	25316	2642
1935	6941	561	2324	15861	2191	36817	14883	3092	31734	11438	4900	34469	3447	7034	3313	8963	32035	2430	1300	10606	7151	4535	14127	1621
1934	5834	462	2270	18000	2136	39272	15580	2427	29065	10385	4303	31298	3493	7016	2848	8274	32601	2213	1152	9631	6866	4355	12738	1302

Chrysler

1941	896	269	315	6322	392	15686	1863	245	10014	1271	2079	14317	818	805	318	1425	4640	439	299	1871	2264	1299	2779	342
1940	594	170	190	3775	271	10040	1169	147	5690	742	1048	7553	347	373	220	851	2864	288	184	1107	1062	1076	1607	201
1939	453	99	153	2831	214	7754	950	108	4149	637	864	6096	421	366	190	542	2295	189	147	728	773	564	1219	166
1938	373	67	127	2075	170	5928	610	100	2471	448	545	4316	236	201	136	463	1847	133	101	552	582	371	841	118
1937	597	159	270	3851	297	10744	1074	167	7363	856	1046	8114	730	484	299	816	2888	363	215	896	1527	1023	1867	250
1936	413	103	151	2067	181	5576	616	109	3521	538	618	5147	418	208	173	465	1653	199	145	578	843	505	931	143
1935	262	46	104	1409	86	3772	483	95	2326	335	395	3254	298	159	118	291	1243	160	136	365	597	300	774	72
1934	164	32	94	1218	74	3124	458	63	1847	247	324	2426	258	194	71	239	1052	107	77	283	491	279	554	59

DE SOTO

1941	388	182	248	3790	118	10692	750	179	7161	609	1394	9259	471	407	194	856	2052	473	198	1127	1921	717	2184	185
1940	242	97	166	2633	111	8153	494	111	4794	426	890	5286	251	178	138	597	1484	347	143	737	994	669	1441	116
1939	253	105	197	2219	93	7093	431	117	4094	438	698	4409	316	242	121	474	1441	269	120	686	905	398	1115	128
1938	175	54	153	1454	87	4062	292	72	2306	310	408	3161	137	131	67	312	1089	173	87	461	569	334	671	100
1937	387	146	186	3219	175	7641	566	149	6620	628	1021	6388	511	323	147	635	1671	423	148	787	1393	697	1673	147
1936	209	87	105	1381	72	5412	319	59	2778	385	596	3923	312	97	100	248	778	283	80	472	935	458	895	74
1935	175	31	65	949	52	314	258	54	1669	222	287	2392	220	64	133	230	658	188	51	299	493	202	535	51
1934	70	14	41	423	25	1020	115	26	704	82	172	967	82	59	33	89	283	68	22	126	275	68	186	23

Dodge

1941	1222	333	726	9448	539	22156	3174	435	15766	2218	2579	18892	1292	1553	684	3242	10627	755	518	3941	3882	2008	4645	396
1940	1167	236	491	7340	515	18803	2528	391	12531	2134	1939	12704	666	977	651	2551	9171	870	395	2981	2701	2280	4085	324
1939	1091	226	659	7072	529	20464	2468	387	11383	2456	1609	13143	851	1320	622	2294	8838	634	385	2669	2711	1320	3802	446
1938	672	137	407	4742	325	12537	1422	241	5549	1538	892	8247	543	658	359	1292	4480	383	273	1567	1426	871	2184	261
1937	1479	344	886	11912	773	29459	2885	557	18746	3677	3041	19603	1687	1623	752	3451	9994	1132	663	3118	4074	2311	6997	693
1936	1758	313	779	10301	527	25113	2386	454	17420	3564	3047	19118	1523	1249	721	2784	7331	1289	531	3237	4105	2168	6036	643
1935	1159	200	516	6098	345	14567	1615	406	9993	2336	1500	12541	1148	879	520	1686	4551	809	296	1856	2525	1295	3867	391
1934	519	89	322	3844	186	8862	1032	175	5500	1135	868	6092	650	570	248	886	2825	460	187	1017	1555	952	1829	221

THE SERVICE MARKET IN YOUR STATE

(Cars of various makes in use according to age)

Ford

Model	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D.C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
1941	9762	1645	6803	39724	5148	8191	1591	4107	10842	13985	2259	36884	19225	16322	9814	8940	11868	3084	7017	16645	54381	16025	8184	17455	3191
1940	6907	1357	5878	22674	4669	5971	872	3897	9644	11268	2450	32064	15891	14530	8107	6739	9533	2484	4683	12907	41626	13198	5884	13472	2799
1939	6171	1198	4972	26297	4406	4182	727	3692	7620	9307	1884	28837	11545	13493	6743	6269	8405	1845	5770	11247	31981	11136	5597	12449	2354
1938	3792	1174	2853	24023	3414	3481	605	2316	6041	6062	1393	21706	10055	11209	6040	4169	6072	1760	3607	9361	18529	11319	3154	9741	1949
1937	9519	2455	5584	42728	7819	9749	1221	4762	12583	13914	3519	54222	27001	19366	13022	11086	9993	3873	7434	23423	68251	24175	6421	19307	3786
1936	8001	2826	4996	56776	8432	9614	1258	5983	12905	12675	3378	48952	24665	18578	12601	9231	9445	3646	6356	22951	61431	19492	5995	18141	4298
1935	6651	2245	4357	59272	7011	9195	1196	4784	10176	10079	2793	44210	25165	19641	12486	8923	6324	3355	6207	20672	45828	19809	4973	18298	3826
1934	5808	1913	3733	39058	5548	7247	864	2674	8729	10384	2019	25437	13796	10526	8954	6930	5490	2960	3299	17568	31484	10674	4153	13023	2104

HUDSON

1941	1080	295	371	8694	576	1526	118	606	1539	1081	449	7034	3836	1789	1092	678	535	626	897	2663	7838	1295	166	1434	560
1940	941	255	315	4656	737	1435	129	779	1712	1137	491	7883	4264	2185	1220	785	815	634	617	2546	8264	1418	247	1292	532
1939	550	217	160	4088	524	660	88	431	1026	683	282	3706	1504	1101	838	424	489	387	694	1602	3569	873	130	1081	303
1938	387	137	89	3005	566	505	72	220	937	579	336	2383	1237	939	987	453	414	347	467	1310	2442	915	110	702	248
1937	118	102	42	1574	231	295	33	137	303	237	196	1176	654	318	258	141	186	159	244	809	1366	278	43	294	151
1936	93	97	33	1851	246	417	37	151	380	185	170	1311	673	441	389	172	110	176	151	1018	1511	379	42	337	249
1935	94	94	36	1909	201	294	33	123	245	177	117	1080	654	432	417	127	82	127	114	720	1093	346	34	259	170
1934	77	87	28	1585	238	406	32	122	249	181	67	894	528	442	377	127	53	210	115	1075	1051	281	23	269	91

LaLalle

1941	9	6	3	20	7	17	1	6	23	2	7	56	15	7	5	3	5	6	12	47	10	11	1	19	2
1940	99	57	59	1342	177	636	67	263	535	319	28	1935	547	150	93	154	140	141	187	968	1366	329	37	405	51
1939	95	65	58	2095	182	536	62	266	522	325	21	1736	304	177	85	146	144	132	268	1021	1094	288	56	392	49
1938	50	55	23	1748	98	333	44	165	385	178	19	1140	329	93	82	85	81	79	178	717	617	147	33	301	34
1937	136	96	81	3628	241	712	90	304	681	324	29	2275	567	207	147	247	154	168	293	1505	1427	364	39	554	50
1936	59	48	33	1888	80	236	43	144	285	140	7	949	31	90	72	79	86	75	114	636	556	139	17	305	28
1935	28	24	16	1602	57	201	33	86	192	100	10	651	225	95	64	80	65	50	76	393	406	118	17	219	24
1934	33	17	12	711	52	105	17	41	132	64	2	344	111	45	31	51	28	36	46	291	252	57	5	107	6

Lincoln

1941	188	97	122	2332	210	499	49	220	627	283	72	1576	491	308	258	175	372	104	161	834	1276	348	169	604	85
1940	123	93	101	1525	214	389	34	196	677	257	91	1519	421	257	229	164	360	92	121	636	1282	318	131	512	88
1939	130	77	98	2315	209	321	33	181	629	285	82	1454	368	245	173	174	328	83	152	598	1175	283	121	422	89
1938	74	100	53	2452	168	236	31	137	572	238	67	1083	324	210	154	115	217	73	96	462	949	272	71	395	85
1937	161	156	111	3230	279	378	45	251	839	417	129	1846	572	357	230	197	241	127	179	813	1713	525	125	593	191
1936	74	59	43	2122	149	171	25	129	369	157	82	989	339	206	131	105	128	41	87	512	818	248	47	286	108
1935	5	2	4	263	12	32	2	14	24	12	3	143	31	6	7	13	13	6	10	86	61	18	8	28	1
1934	2	10	3	232	13	32	3	25	40	18	3	200	28	14	9	21	11	7	10	112	73	28	3	38	2

MERCUHY

1941	1281	302	557	8182	1067	1429	184	457	1608	1814	444	6254	2315	1598	1108	824	1310	383	660	2343	8203	2018	734	2515	586
1940	729	225	471	5112	1029	1231	113	527	1524	1436	447	5863	1904	1461	957	717	1086	342	442	2073	6719	1927	507	1861	471
1939	433	192	379	6372	754	870	109	550	1273	963	252	4407	1310	1176	807	497	840	285	528	1427	4642	1355	358	1568	356

NASH

1941	273	253	276	4912	564	1525	140	284	891	773	370	8170	2233	1184	937	648	679	466	1072	2264	5242	1939	242	2109	561
1940	349	227	232	2187	517	987	67	211	897	648	271	6097	1582	952	617	448	514	328	390	1620	2735	1493	173	1477	483
1939	300	188	158	3175	373	714	57	180	667	566	176	5070	1218	836	460	399	256	292	635	1788	1957	1132	165	1786	419
1938	167	141	142	2205	321	547	45	199	509	373	114	3051	621	746	430	284	212	187	341	1319	1204	1156	128	999	279
1937	318	298	209	4186	934	1427	83	144	629	632	346	8225	1826	1359	902	566	517	496	442	3148	3177	1836	175	1291	668
1936	255	263	91	3790	729	967	62	182	465	444	303	4229	934	1181	694	326	437	331	324	1982	1394	1151	162	874	597
1935	65	98	20	3947	242	400	36	86	233	131	79	1934	793	376	200	184	207	120	350	890	515	356	109	555	204
1934	102	86	38	1885	304	750	34	123	247	185	95	1867	519	452	297	213	323	307	281	1865	675	438	125	549	194

OLDSMOBILE

1941	1559	675	1013	20480	1708	5228	1136	2103	2986	3052	809	19598	8458	3541	3180	2627	2184	1661	3652	13173	16581	4160	1252	6577	1192
1940	1047	452	732	9977	1313	3216	569	1461	2255	2347	724	14380	6050	2656	2427	1877	1488	1225	1740	9200	11014	3112	866	4600	918
1939	843	391	687	11491	1114	2196	452	841	1776	1822	412	9310	2975	2066	1632	1422	1164	753	1647	6861	6157	2090	646	3525	678
1938	555	292	302	9274	786	1499	335	573	1465	1108	317	6439	2486	1375	1105	965	850	614	965	4350	3551	1616	379	2533	432
1937	1079	630	521	18492	1904	3200	648	1261	2603	2083	649	14466	6164	2749	2273	1847	1289	1075	1715	8306	10900	3192	511	4194	762
1936	832	572	452	18388	1765	3230	648	1508	2444	1711	579	14454	5703	2875	2013	1702	1382	1135	1452	8583	9993	3203	362	4196	676
1935	642	413	348	14348	1147	2026	452	851	1397	1103	355	9536	4499	2189	1817	1193	733	670	1144	4855	6136	2490	279	3193	494
1934	443	233	196	5823	665	1344	221	404	809	752	192	5186	2111	1208	1059	679	424	404	560	2804	3595	1203	155	1995	251

† Model Year Estimated

Ford

Model	Neb.	Ne.	N.H.	N.J.	N.M.	N.Y.	N.C.	N.D.	Ohio	Okl.	Ore.	Pa.	R.I.	S.C.	S.D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.
1941	7783	547	2280	16786	2180	36073	15604	3714	36654	12170	4988	37184	2629	8812	3245	12921	44518	2078	1540	14988	6959	5331	15701	1916
1940	6398	479	1263	12906	1773	31474	11267	2768	28289	9154	4308	24925	1663	5473	2836	9762	37336	1807	1080	11462	5009	5378	11668	1265
1939	5781	470	1678	9553	1643	25051	9526	2377	23007	8080	3368	21479	2190	5959	2503	8135	31231	1703	883	8932	3871	3511	10224	1263
1938	5152	410	1148	8383	1245	22567	7811	2332	14901	6718	2727	17833	1607	3932	2170	4900	24421	1288	717	6660	3289	2417	9083	973
1937	8721	723	2489	21037	2301	58749	14569	3762	58179	13581	7859	36036	3816	8244	4680	10839	41598	3102	1752	13355	11057	7036	21897	2018
1936	9413	962	2714	19616	2549	60662	12967	3105	53216	13996	9093	37132	3825	7543	4553	9450	42213	3497	1845	12622	13498	6574	18613	2110
1935	9060	794	2580	19435	2149	56117	14128	3878	41752	13297	6248	35302	3905	6928	4642	8477	34375	2781	1652	11996	9396	5259	18767	1661
1934	5577	508	2063	13676	1736	39637	11645	2036	28637	9601	3959	25476	2954	7470	2563	7183	28557	1927	1133	8455	6274	4172	9910	1096

HUDSON

1941	437	69	381	2857	167	5526	1442	104	6373	709	938	6309	468	963	137	752	2546	379	264	1259	1904	806	2568	237
1940	476	56	261	2518	190	6063	1459	140	6541	688	807	4995	297	897	146	797	2832	379	225	1081	1352	1045	2536	220
1939	295	46	309	1283	102	3711	1019	94	2895	500	415	3359	302	647	127	372	1609	257	146	576	704	346	1132	143
1938	323	54	219	1261	131	3238	723	127	2239	405	586	2773	158	509	123	397	1820	174	140	462	886	325	1002	140
1937	105	36	105	689	50	1915	195	36	1362	189	322	1268	98	98	31	157	740	102	108	169	552	126	379	60
1936	132	47	131	667	57	2077	199	42	1555	218	398	1402	106	81	58	106	665	137	100	172	660	166	522	70
1935	143	27	100	499	48	1613	212	42	1249	187	281	1269	109	69	71	134	429	97	87	183	458	110	431	72
1934	146	21	132	684	28	1835	264	36	1053	175	208	1211	121	117	53	106	404	113	75	215	400	103	346	50

LaLalle

1941	2	2	36	126	12	2	38	8	10	52	12	7	3	3	17	2	16	7	4	13	1			
1940	57	59	52	1196	34	3441	210	12	1192	162	158	1298	91	73	36	194	724	63	45	180	179	163	384	29
1939	65	43	81	1136	40	3106	237	11	1162	191	193	1411	158	88	30	187	870	48	43	196	193	124	335	29
1938	36	41	65	751	23	1949	144	13	664	128	84	998	120	48	22	103	514	40	43	130	144	66	178	16
1937	78	66	77	1562	32	4126	239	24	1614	263	226	2022	224	74	24	224	731	61	89	202	350	146	418	23
1936	33	23	32	660	14	1520	83	8	661	114	134	968	99	36	9	89	333	26	28	98	138	61	167	8
1935	31	22	33	470	14	1017	75	5	494	88	66	757	62	24	6	67	225	32	26	78	93	55	164	4
1934	18	5	14	309	8	716	52	6	294	40	42	381	31	14	4	31	142	20	14	43	64	26	94	3

Lincoln

1941	198	51	79	990	92	2241	349	47	1112	321	239	1536	146	182	49	266	1142	93	71	310	246	148	429	73
1940	164	60	59	792	71	2645	267	36	869	238	213	1088	89	98	41	235	1036	103	48	283	224	157	381	55
1939	126	57	66	657	69	1876	257	34	863	257	207	1104	109	120	43	211	936	73	38	239	202	110	326	66
1938	147	41	55	546	45	1574	249	44	647	233	214	1029	111	96	28	122	759	65	28	198	218	91	264	51
1937	206	72	81	858	94	2640	339	54	361	365	401	1536	168	131	60	210	981	132	44	289	430	145	516	86
1936	104	35	50	507	54	1551	143	41	653	200	202	871	72	63	39	81	501	79	32	135	258	68	249	48
1935	3	2	4	66	259	12	2	64	15	12	92	26	5	5	10	25	3	4	10	4	5	7	7	1
1934	6	3	9	118	1	401	16	2	68	20	14	107	13	4	1	18	29	2	8	13	11	19	19	1

MERCURY

1941	860	145	341	3111	477	6545	1764	362	5358	1210	827	5250	457	1015	366	1308	4797	349	248	1483	1013	648	2363	327
1940	738	130	210	2353	383	6507	1238	306	3750	1194	743	3818	294	580	320	904	3735	347	156	1214	748	582	1856	265
1939	579	95	217	1779	244	5160	1045	261	3010	1209	551	3455	316	558	241	596	2473	200	118	901	559	398	1353	254

NASH

1941	434	74	223	3083	178	5721	572	312	6591	680	1481	7038	610	253	322	1099	1953	293	186	420	1949	529	5379	170
1940	334	62	106	2043	120	4075	422	162	4323	464	1001	3905	239	209	237	585	1628	201	119	265	998	526	3646	129
1939	297	84	232	1645	73	3728	359	183	2861	345	769	3311	396	213	206	477	1038	141	141	204	732	279	2786	129
1938	296	61	162	1547	70	3236	333	141	1592	270	632	2595	193	123	168	348	858	139	111	282	529	164	2571	98
1937	464	188	361	2763	118	5960	422	171	4968	507	1310	4836	510	166	288	772	1316	289	207	381	1262	439	7197	163
1936	441	188	283	1487	81	4362	253	137	2737	372	1060	3591	331	76	254	486	963	350	152	304	940	381	2908	143
1935	200	33	171	686	40	1711	127	113	1039	223	198	2141	128	21	104	188	296	178	50	172	167	124	2103	44
1934	165	37	233	1357	27	3397	222	58	1361	199	224	1958	283	56	96	191	384	152	69	195	194	197	1363	46

OLDSMOBILE

1941	1422	207	1042	10763	722	27879	3515	521	17339	2986	2675	21902	2109	1778	733	2717	10761	850	853	3466	4265	1987	7056	424
1940	928	167	548	7837	628	21554	2338	354	11852	2046	1925	12838	1014	1002	586	1840	7981	736	581	2209	2613	1923	5026	343
1939	841	142	711	5346	454	15605	1712	324	7242	1672	1187	10279	1027	699	490	1413	5522	480	472	1421	2018	934	3031	328
1938	565	146	446	3993	257	11489	1147	217	4621	1247	829	7617	701	392	244	875	4299	299	281	901	1600	651	2217	173
1937	1186	200	847	7945	479	20320	1822	333	11739	2411	1720	14735	1606	781	456	1739	7284	653	433	1726	3555	1424	5379	403
1936	1317	215	909	8696	347	21139	1639	261	12931	2409	1755	14729	1610	613	527	1394	6650	735	482	1803	3364	1447	5375	402
1935	959	148	507	5156	288	12006	1299	309	7779	1670	902	10278	862	566	469	903	3543	503	329	1052	1865	875	3498	265
1934	559	83	279	3078	165	7962	678	174	4458	821	481	5049	537	324	224	550	1901	216	171	547	1289	530	1889	139

THE SERVICE MARKET IN YOUR STATE

(Cars of various makes in use according to age)

Packard

Model	Ala.	Ariz.	Ark.	Calif.	Colo.	Conn.	Del.†	D. C.	Fla.	Ga.	Idaho	Ill.	Ind.	Iowa	Kan.	Ky.	La.	Me.	Md.	Mass.	Mich.	Minn.	Miss.	Mo.	Mont.
1941	557	327	206	6587	533	2268	346	673	1313	1117	178	5795	1574	636	431	645	560	403	1504	3461	4242	1072	194	1489	226
1940	524	348	284	4416	621	2535	209	746	1639	1254	256	7604	1716	727	543	707	638	462	985	3491	4898	1239	264	1483	284
1939	266	149	142	5758	285	1112	133	402	888	601	74	3640	653	316	237	388	336	212	1045	2018	1688	613	142	1106	121
1938	266	189	131	4900	350	1249	133	406	1072	673	73	4085	760	483	298	379	311	239	785	2147	1837	871	75	1071	189
1937	576	351	228	7848	779	3228	255	1162	2056	1442	198	8325	1813	1001	678	1125	579	563	1236	5504	5825	1643	203	2046	380
1936	223	163	98	6501	410	1569	155	627	1055	715	89	4496	1296	487	321	526	282	303	725	2985	2250	942	69	1219	180
1935	115	90	40	3502	211	777	81	300	508	320	42	2189	559	289	172	257	140	152	378	1559	985	512	41	606	95
1934	23	13	5	583	41	265	18	85	130	100	4	517	91	48	26	55	36	30	59	465	216	124	6	128	8

Plymouth

1941	4883	1773	2114	34237	3163	9081	1306	4895	8500	8123	1394	33901	18918	8330	5789	5882	5231	2437	9216	19078	31770	10155	2645	13402	1987
1940	3486	1439	1753	22568	2620	7058	740	4161	6564	5629	1550	30428	14750	6851	4675	4452	4133	1979	5832	14364	20738	9679	2047	10252	1772
1939	3766	1196	1943	22866	2791	6490	690	4105	6309	5163	1350	27707	9371	7462	4383	4372	4021	1740	5397	15057	17921	8895	2317	10356	1518
1938	1986	813	1320	22531	1869	3813	524	2377	4035	2688	821	16949	8888	5150	3497	3310	2969	1337	4015	8715	8064	6897	1442	7925	1060
1937	4198	2231	2645	33827	5156	8911	943	3641	7052	6492	2064	34850	16687	8945	7258	6586	4988	2478	5372	16265	28084	11905	2930	12400	2108
1936	3375	1863	2266	38548	5224	8451	944	3337	6701	5836	2137	34230	17460	9615	7291	6158	4156	2081	5557	15584	20743	11907	2763	11727	2476
1935	2723	1237	1647	31444	2988	5408	707	2064	4213	4413	1548	21632	13274	7804	5465	4559	2499	1483	4045	8968	12195	8453	1750	8243	2020
1934	2717	1226	1537	22182	2529	5101	566	1225	4206	4376	1149	16984	10118	5259	4615	4267	2467	1435	2963	8178	10147	5216	1721	7877	1257

PONTIAC

1941	1764	753	1336	26195	2127	6628	1090	3252	2805	3137	701	22085	10222	3996	3525	2833	2631	2218	4869	13675	27835	5118	1571	6085	696
1940	1040	406	1046	13455	1528	4714	664	2973	2092	2135	593	16794	6353	2929	2262	1977	1569	1549	2523	7912	15817	3615	877	4093	385
1939	911	259	741	12984	915	2881	499	1316	1596	1245	273	10564	2987	2492	1542	1422	1185	1049	2161	5773	8098	2429	773	3360	315
1938	611	243	427	9293	617	1483	345	774	1270	701	253	6393	2290	1685	1392	989	787	792	1212	3158	4634	1879	408	2275	244
1937	1277	588	861	18810	1749	4373	725	1530	2540	1854	645	18388	7351	3837	3161	2265	1117	1569	2350	8256	15831	4778	692	4809	652
1936	870	468	847	16360	1487	3433	572	1042	1955	1219	560	12185	5722	3357	2345	1723	1024	1129	1889	6170	10511	3556	577	4132	507
1935	667	439	582	10049	1293	2002	393	684	1565	1105	407	8892	4056	2453	1974	1175	752	704	1494	3741	7813	2771	459	2823	536
1934	346	225	193	3642	636	1716	205	471	1042	893	182	4953	1849	1271	1053	693	286	565	688	2909	3435	1025	266	1798	240

STUDEBAKER

1941	1304	461	457	12810	865	1864	524	1104	1736	1559	778	9194	6316	2355	1111	1060	1566	481	1999	3323	4080	2757	337	2732	847
1940	1031	401	562	7799	818	1394	268	883	1633	1288	747	8066	4559	1956	993	855	1393	348	1234	1294	3338	2634	525	2399	737
1939	294	239	315	10401	574	1064	146	701	1219	965	439	5930	3348	1442	783	610	700	318	1084	2220	2237	1801	359	2004	572
1938	133	144	89	5885	299	691	80	437	494	416	219	3022	1751	799	462	299	412	200	428	1123	785	1019	57	716	238
1937	345	287	252	7614	768	1592	131	629	873	904	552	6283	3892	1589	986	734	598	417	648	2627	2112	1995	135	1429	461
1936	226	246	121	8821	495	951	108	382	478	527	390	3887	2925	1104	688	448	406	257	608	1541	1093	1251	82	1137	356
1935	138	190	104	5046	336	625	69	280	376	474	249	2499	1726	892	638	322	306	206	439	1080	837	953	64	806	338
1934	248	227	126	5106	415	903	81	339	521	513	233	2738	1464	1030	867	438	269	306	364	1723	1179	1131	91	1021	281

TERRAPLANE

1937	1127	313	205	3582	1188	1184	144	376	1495	1105	553	5286	2796	1639	1801	870	588	549	689	2248	7357	1797	281	1304	505
1936	788	282	242	3892	1071	944	136	345	1258	817	494	4902	3396	1762	1520	783	382	535	619	2447	6334	1857	284	1247	837
1935	384	181	106	2885	511	597	84	215	607	383	282	2612	2387	1163	1073	443	199	266	395	1287	3301	1182	162	722	505
1934	362	152	87	1851	350	791	70	170	639	473	140	2100	1144	853	737	343	168	487	242	2019	2466	691	93	567	208
1933	174	89	34	1752	240	750	52	126	388	259	51	1354	818	575	538	249	91	393	253	1737	2235	404	42	460	108
1932	64	72	23	1365	213	471	37	77	300	116	37	786	635	370	325	253	63	306	196	1187	1136	323	25	424	42
1931	60	42	23	1209	262	585	44	72	396	142	40	1035	891	663	442	312	90	574	225	1399	1389	536	27	519	60
1930	56	70	46	1907	293	528	51	41	349	70	88	967	762	699	376	321	67	470	218	766	921	932	25	471	90

WILLYS

1941	526	55	130	3481	187	305	54	54	705	542	147	969	740	354	214	239	240	192	470	576	966	281	80	335	105
1940	332	48	125	2349	155	279	29	46	698	351	139	1096	693	331	188	189	390	179	196	498	876	250	95	247	96
1939	125	42	16	2408	96	159	19	91	414	69	48	428	430	125	79	113	113	130	217	257	297	235	39	203	30
1938	143	61	41	1870	76	158	19	68	503	180	63	781	445	259	228	171	285	69	213	297	475	334	67	335	47
1937	466	210	153	9152	548	848	75	172	1055	493	180	2706	2244	728	590	612	355	241	396	1092	2139	930	119	1085	207
1936	141	107	31	4638	122	125	30	10	517	242	87	225	354	112	29	92	97	25	23	85	346	80	35	50	36
1935	113	65	23	4478	19	52	27	10	255	151	55	97	241	40	17	65	86	11	9	32	111	28	30	37	38
1934	94	35	32	2144	18	48	15	5	418	263	21	72	108	32	18	55	109	19	12	42	120	8	21	36	8

† Model Year Estimated

Packard

Model	Neb.	Nev.	N. H.	N. J.	N. M.	N. Y.	N. C.	N. D.	Ohio	Okl.	Ore.	Pa.	R. I.	S. C.	S. D.	Tenn.	Tex.	Utah	Vt.	Va.	Wash.	W.Va.	Wis.	Wyo.
1941	357	143	397	3743	136	9403	809	53	4268	544	715	7936	505	571	62	936	2631	303	328	1124	1330	657	1520	102
1940	376	199	219	4251	130	10584	926	65	4880	573	735	6556	300	532	73	1016	3214	372	366	1236	1191	945	1518	124
1939	204	73	273	2169	78	5265	520	29	2106	397	283	4570	408	355	58	491	1476	115	130	538	532	362	813	80
1938	286	89	156	2568	126	6621	537	38	2339	390	378	4570	351	346	72	445	1642	158	172	600	510	362	840	87
1937	440	168	394	5684	194	13368	1253	58	6538	769	813	8787	886	779	151	1019	3270	341	298	1384	1496	921	1869	146
1936	284	83	223	2839	131	7250	523	31	3303	483	477	5374	418	321	97	482	1390	229	143	713	674	395	1380	50
1935	148	31	111	1527	46	3843	264	14	1455	240	194	2781	201	126	48	225	634	107	82	326	316	163	631	23
1934	11	6	15	491	2	1192	34	307	46	34	593	41	23	1	41	103	19	17	73	39	42	89	5	

Plymouth

1941	3316	615	1654	19034	1101	47301	9049	1700	38081	4476	4697	47407	3580	4890	1434	7543	19776	1462	1311	10703	7363	5545	10494	876
1940	2659	499	1071	14055	911	40142	5793	1253	29427	4116	4201	30976	1841	2600	1278	5177	15493	1473	924	6970	5329	5149	8906	681
1939	2852	427	1349	13363	1030	41003	6575	1091	25664	4276	3138	30198	2837	3532	1337	4825	16188	1236	877	6558	4808	3483	7958	781
1938	2245	274	975	9213	879	27199	4185	806	13017	3260	1902	22970	1580	1748	1001	3259	11894	741	661	4207	3289	2242	5808	581
1937	4067	643	1667	17115	1515	44160	7919	1234	36665	5870	5492	41299	3714	3954	1604	6908	21314	1911	1191	7057	8814	5292	11647	1150
1936	4997	668	1699	16164	1466	41813	7311	1154	34885	5855	5129	41296	3738	3442	1824	5922	18589	2199	1237	7247	8328	5587	11197	1205
1935	3645	404	1150	10175	1076	24701	6069	1307	22539	4401	3491	30973	2719	2494	1626	4825	12931	1455	880	4855	5417	3634	8714	822
1934	2567	261	949	9361	819	23108	6466	796	21726	3509	2907	24772	2467	2612	947	4390	11786	1171	702	4256	4481	3344	6036	567

PONTIAC

1941	1894	252	1209	16315	632	34485	5340	500	22794	3679	3906	25382	2103	2326	446	3053	9488	1077	1098	4768	4620	2030	7064	389
1940	1261	221	563	12005	485	25312	3277	304	14626	2807	2633	15075	931	1058	314	1861	6588	862	680	3195	2819	1856	4801	247
1939	876	121	712	7679	321	17345	2069	222	8887	2245	1257	11045	1041	970	274	1263	4107	368	373	2018	1696	826	2988	152
1938	631	112	435	5085	193	11226	1402	185	5313	1542	924	7647	549	533	206	850	3438	268	231	1145	1159	562	2216	111
1937	1577	281	785	10553	445	22632	2442	370	17239	3262	2421	16060	1390	1099	529	1542	6248	695	557	2473	3420	1481	5857	358
1936	1393	224	668	7615	337	16350	1513	276	12536	2577	1909	12654	1084	672	479	1433	5273	475	420	1904	2447	1227	4504	343
1935	1173	101	403	4880	338	11296	1528	340	8153	1748	997	8681	770	685	473	995	4374	426	328	1376	1385	688	3417	284
1934	594	50	296	3623	155	7854	1093	159	3461	922	468	4536	637	457	214	542	2522	186	225	851	747	392	1778	116

STUDEBAKER

1941	961	202	337	3966	259	7764	2016	422	7195	1066	1943	10726	674	737	374	1928	4443	759	257	1609	2859	1281	2868	293
1940	727	185	206	3124	225	7038	1346	294	6620	762	1434	6598	339	602	337	1542	3773	759	159	1241	2005	1487	2333	240
1939	568	143	274	2435	202	5809	837	194	4716	714	941	5875	689	575	221	1087	2876	610	153	811	1552	916	1993	172
1938	339	68	163	1468	94	3085	223	102	1948	375	550	3143	318	159	119	377	1926	302	88	396	951	384	865	85
1937	575	155	280	3262	187	6802	423	164	5559	621	1264	5220	592	388	238	724	3640	619	137	571	2008	789	2101	165
1936	538	114	228	1707	120	3622	230	113	2991	518	966	4335	219	199	174	443	2032	401	66	398	1745	436	1559	158
1935	407	52	119	1169	77	2487	265	113	2068	331	523	2789	118	140	180	303	1561	226	44	304	1075	257	923	81
1934	456	58	212	1819	100	4594	423	156	2661	378	516	3191	233	267	203	355	1678	186	63	434	1047	276	937	61

TERRAPLANE

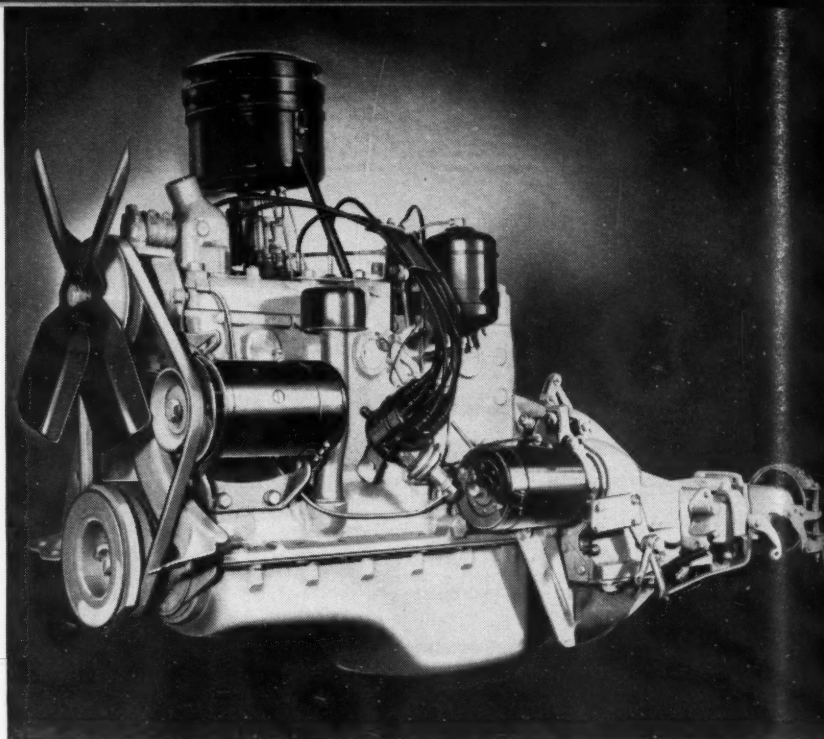
1937	532	73	305	2263	263	5415	1263	221	6874	648	1069	5213	345	987	199	833	2872	430	212	835	2068	716	2042	282
1936	553	93	291	1667	221	4688	838	213	6079	605	1292	4963	469	654	297	714	2669	478	256	738	2228	645	2017	272
1935	359	26	203	969	107	3008	621	106	3525	379	668	3074	186	401	243	450	1316	182	151	497	1181	323	1187	186
1934	357	34	267	1142	56	3433	813	65	2621	303	340	2534	276	359	169	385	977	195	161	530	672	345	835	124
1933	178	6	265	952	30	3318	492	34	1905	234	222	1917	276	238	49	217	443	98	169	360	511	230	624	67
1932	101	9	136	908	12	2417	232	26	1340	163	126	1381	188	101	38	131	214	88	140	210	193	127	604	50
1931	164	10	224	1016	23	3007	261	33	1681	189	173	1607	204	101	67	171	221	98	205	218	269	133	683	46
1930	156	21	130	748	29	2387	180	75	1825	224	464	1859	95	65	118	140	192	124	141	140	608	183	710	43

WILLYS

1941	66	21	145	766	14	1655	435	82	1861	225	510	2397	202	126	83	485	540	106	62	144	855	232	467	52
1940	48	21	79	714	24	1651	360	53	1794	211	558	1512	79	130	66	526	571	87	56	159	385	339	395	42
1939	52	12	69	378	12	1004	140	35	1085	145	170	828	19	51	40	134	270	51	26	137	125	146	216	17
1938	111	21	60	508	38	1450	203	58	873	155	217	862	43	91	39	134	496	46	47	244	192	136	289	37
1937	382	64	195	1599	135	3393	647	96	5136	582	811	3340	136	439	130	540	1271	185	140	521	1265	585	1047	124
1936	78	28	56	163	24	361	48	33	1067	238	753	1370	6	112	15	312	307	64	17	41	1033	62	47	23
1935	29	8	12	81	15	143	74	9	495	202	386	1156	8	94	6	198	179	28	1	42	447	30	37	3
1934	18	13	5	77	6	259	81	4	381	111	263	670	12	111	3	203	175	10	4	30	216	21	13	4



DEFENSE SERVICE ISSUE



The new Dodge engine, which develops 105 hp. at 3600 r.p.m., has a displacement of 230.2 cu. in., and a 6.7 to 1 compression ratio. It uses aluminum alloy pistons and a cast-iron cylinder head. Above right, diagram of the Turbo-matic drive offered as optional equipment on the Studebaker Commander and President models. It consists of a fluid coupling, an automatic clutch operated by vacuum (power unit shown at right in the illustration), and selective control.

SERVICE FEATURES

WHEN a mechanic looks at the 1942 models, he tries to look through the glitter of chrome and stainless steel and the mass of sheet metal and find out what is new on the inside—particularly those new features that are going to affect him in performing the normal repair operations.

The new models present quite a few changes in appearance, with their wider front fenders and lower radiator grilles, and these features mean to the mechanic that the sheet-metal work on the new models is going to cause him quite a bit of additional work.

Most of the cars are equipped with a metal splash shield above the front bumper, usually fastened to the bumper. Fenders are higher, and replace the former hood side panels in many models, and they extend around the front end to form a fastening base for the radia-

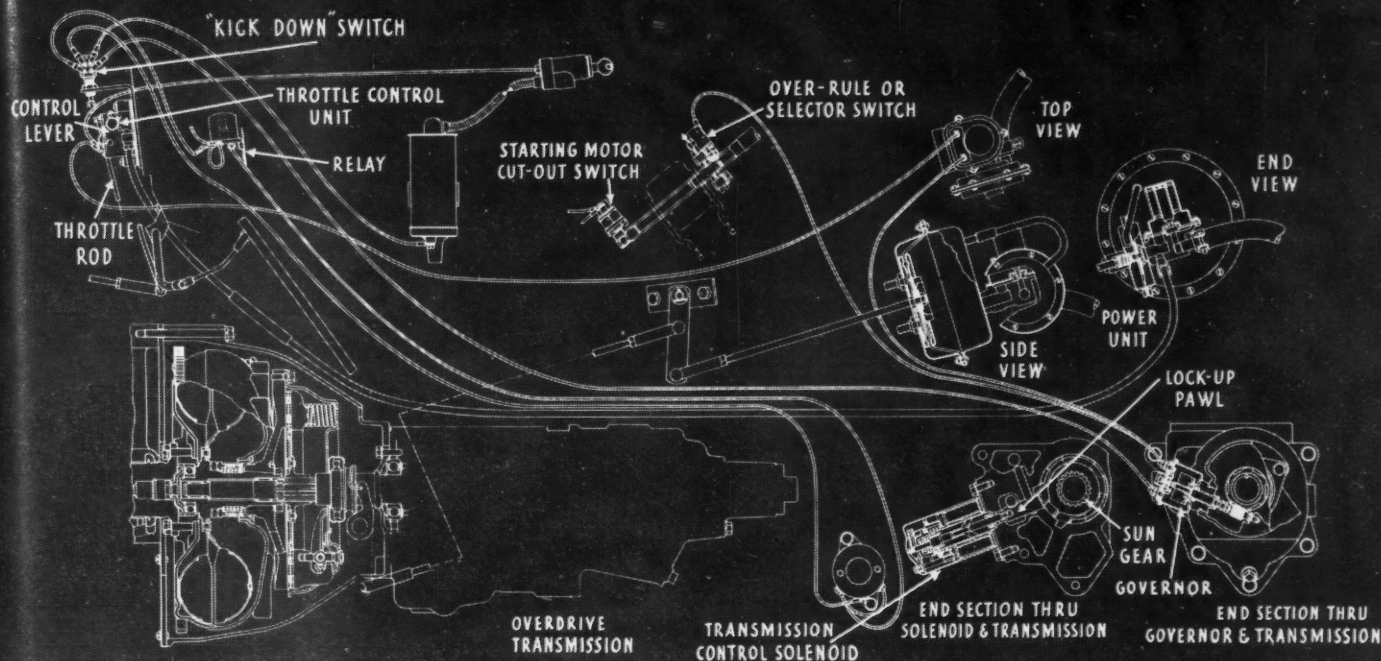
Mechanical changes affecting procedure and the time required to make repairs

By **BOB HANKINSON**

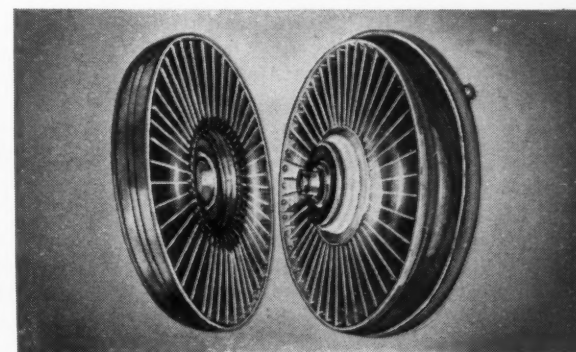
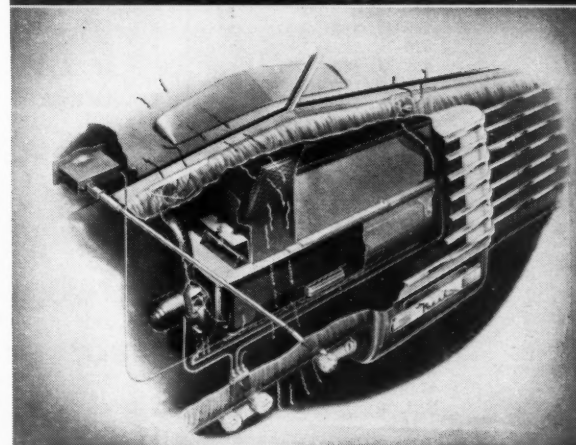
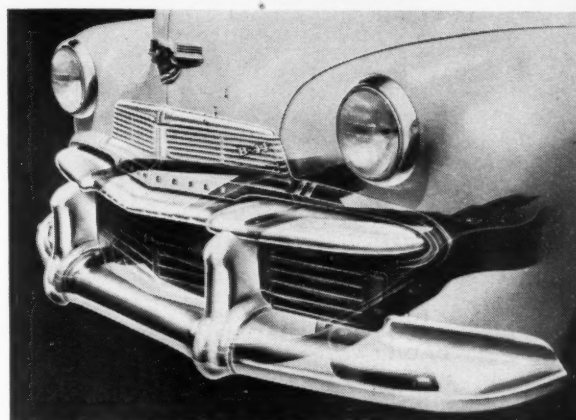
tor grille and the bumper splash shield. Since these parts are all tied together to form a unit, front-end sheet metal wrecks will mean the realining of these parts more carefully than in the past models. In the case of the General Motors cars, where the front fender extends into the front door panel, the alinement of the fender with the bulge in the door panel is going to add another

point for the mechanic to watch. Time allowances for removal and installation of front fenders on many of the 1942 models will be increased slightly over past models.

The die-cast radiator grille has passed out of the picture, and in its place is to be found the sheet metal stamping with its stainless steel or chrome plated cover. This means that we will be straighten-



Right, the double-duty front bumper on Oldsmobile consists of a separate bumper, mounted above the conventional one, with its own mounting brackets, providing extra protection to the front sheet metal and grille. Front end of the frame has been stiffened to accommodate this extra mounting. Center at right, Nash "Weather Eye" system of ventilation, continued with improvements for the comfort and safety of the passengers. Bottom right, Fluid Drive, standard on Chrysler 8's and optional on 6's. It has been redesigned to improve efficiency.



OF THE 1942 CARS

ing radiator grilles during the coming year instead of replacing them.

Oldsmobile has a double-duty front bumper which consists of a shorter bumper bar mounted above the conventional bumper. This is going to complicate further the sheet-metal work on this make, since the dual bumpers are so closely tied in with the sheet metal of the front end. The Oldsmobile frame has been made heavier, particularly at the front cross member, to provide for the additional bumper mounting.

As far as the front-wheel suspension is concerned, there are no changes that affect the regular front wheel alining operations. Brakes remain the same, with the addition of new splash shields to the backing plates of the General Motors line and the use of the two wheel-piston type of brake on the front wheels of the seven-passenger

Dodge—the same brake as used on the Chrysler cars for the past two years. In many cases, the width of the brake lining has been increased to provide increased braking area, but this does not change the regular service operations.

Generally speaking, the higher fenders have eliminated the former hood side panels. This means an increased use of the removable plate under the front fender to gain access to the engine for valve-tappet adjusting. The alligator-type hood, however, opens up the engine compartment for engine tuning operations a little better than in past models, so there will be no additional complications for the mechanics in those operations.

Restrictions on the use of aluminum have made many changes necessary. There isn't a single aluminum cylinder head in the

(Continued on page 51)

COOLING SYSTEM CAPACITIES

by

MAKES and MODELS

AUBURN	Quarts	CHRYSLER (cont.)	Quarts	HUDSON (cont.)	Quarts	NASH (cont.)	Quarts	PONTIAC (cont.)	Quarts
120, 125, 1929, 1930	25	C-18, 1938	20	44, 47, 1940	18	4160, 1941	17	6, 1935	13½
8-98, 1931	21	C-19, 1938	20	10, 11, 12, 1941	13	4180, 1941	16	8, 1935	14
8, 1932, 1933	19	C-20, 1938	20	14, 17, 1941	18	4240, 1942	14	6, 1936	15
6-52, 1934, 1935	17½	C-22, 1939	17	20, 21, 22, 1942	13	4260, 1942	17	8, 1936	16½
8-50, 1934, 1935	21	C-23, C-24, 1939	24	24, 25, 27, 1942	18	4280, 1942	16	6, 1937, 38, 39, 1940	16
12, 1932, 33, 34	37	C-25, 1940	18					8, 1937, 38, 39, 40	19
6-654, 1936	16	C-26, C-27, 1940	24					6, 1941, 1942	18
8-852, 1936	20	C-28, 1941	18					8, 1941, 1942	19½
AUSTIN		C-33, 1941	24	HUPMOBILE		OAKLAND		REO	
1931 to 1936	6	C-30, 1941	24	S, S-2, 1930-31	14	Six	12	15, 1930	14
BANTAM		C-34, 1942	18	C, 1930, 1931	20	8, 1930, 1931	25	C Fly. Cloud, 20,	
1938	7	C-36, C-37, 1942	26	H, U, 1930, 1931	28	OLDSMOBILE		25, 1929, 30	19
1939	4			L, 1930, 1931	16	1929, 1930, 1931	13	6-21, 6-25, 1931	17
1940, 41	5½	DE SOTO		216, 1932	13	Six	12	8-21, 8-25, 1931	16
BUICK		Six, 1931, 1932	15	222, 1932; 332, 1934	21	8, 1933, 1934	19	1932	16
8-50, 1930 to 1933	12	Six, 1933	16	226, 1932; 326, 1933	24	F35, F36	13	8-31, 8-35, 1931	23
8-60, 1930 to 1933	16	Six, 1934	20	321, 1933	21	L35, L36, F37	16	S, 1932, 1933	20
8-80, 8-90, 1930		Six, 1935	17	417, 1934; 421-J,		L37	20	Royal, 1932, 33	23
to 1933	19	Six, 1936	19	1934	16	F38, 60, 70, 1938-39	17	S4, 1934	19
40, 1934	14	S-3, 1937	20	427, 1934	24	L38	21	Fly. C., 1935, 1936	18
50, 1934, 1935	15½	S-5, 1938	20	518, 1935	20	80, 1939	24	Roy., 1935	20
60, 1934, 1935	18	S-6, 1939	19	321, 527, 1935	24	60, 70, 1940	17½		
90, 1934, 1935	23	S-7, 1940	17	6-618G, 1936	18	Cruiser 8, 1940	21		
40, 1935	13	S-8, 1941	18	8-621N, 1936	21½	6, 1941	18		
40, 1936, 37, 38, 39	13½	S-10, 1942	18	6, 1938, 39	18	8, 1941	22		
60, 80, 90, 1936		ESSEX		8, 1938, 39	21½	6, 1942	18½		
1937, 1938, 1939	17	Six	19	LAFAYETTE		8, 1942	20½	STUDEBAKER	
40, 50, 1940	12½	Super six, 1932	17	1934, 1935, 1936	19	OVERLAND	11½	Big 6, 1926, 27	19
60, 70, 1940	16	DODGE		LASALLE		1939		Dict., 1928	14
40, 50, 1941, 1942	13	Vict. 6, 1928	12	328, 1929	21	PACKARD		Com., 1928	20
60, 70, 1941, 1942	16½	Six, 1929, 1930	16	340, 1930; 345, 1931	24	903, 904, 1931	25	Pres., 8, 1928	20
80, 90, 1941, 1942	18	8, 1930	17½	1932, 1938	26	Lt. 8, 1932	19	Dict. 6 & 8, 1929	15
CADILLAC		Six, 1931, 32, 33	14½	St. 8, 1934, 1935	18	Std. 8, 1932	20	Com., 6, 1929	17
370, 1931	26	Eight, 1931, 32, 33	16	8-26-50, 1936	16½	Del. 8, 1932	25	1930	14½
8, 1932, 33	26	Six, 1934	18½	37-50, 37, 38, 39, 40	25	12, 1932-36	40	Pres., 1929, 1930,	21
12, 1932, 1933	24	Six, 1935	17	LINCOLN		8, 1933-36	20	1931	21
16, 1932, 1933	28	6-D2, 1936	15	8, 12, 1931 to 1933	34	Super 8, 1934, 35, 36	22	Six, 1930, 31, 32	12½
355-D, 1934, 1935	20	Six, 1937	16	12-1934, 1935, 1936	32	120, 1935	16½	Dict. 8, 1930, 31	18
370-D, 1934, 1935	19	Six, 1938, 39, 40	15	1937, 1938	32	120-B, 1936	18	Com., 70, 1931	14
452-D, 1934, 1935	23	D19, 1941	15	V12, 1939-40	32½	Six-115-C, 1937	17	Dict., 62	14
V8-60, 1936	30	D22	15	V12, 1942	27	120-C, 1937	20	Com., 71	16
V8-70, 75, 1936	29	FORD		LINCOLN ZEPHYR		8-1500, 1, 2, 1937	24	President 91	21
V12-80, 85, 1936	19	V-8, 1932, 33, 34, 36	22	H, 1936, 1937	27	12-1506, 7, 8, 1937	40	Six 56, 1933	14
V16-90, 1936-37	24	V-8, 1935	20	1938, 39	30	Six, 1938, 39	15	Com., 1933	16
V8-60, 65, 70		V-8-60, 37, 38, 39	15	1940, 41, 1942	27	8-1601, 1701-2,		Pres. 82, 1933	18
75, 1937	25	40	22	MARMON		1938-39	16	Pres. 92, 1933	23
V12-85, 1937	17	V-8-60, 1940	13	70, 1931	16	Sup. 8, 1938	20	Dict. 6, 1934	15½
V8-60, 60-S, 1938	24	V-8-85, 1941	26¼	88, 1931; 8-128, 1932	28	Twelve, 1938, 39	40	Com. 8, Pres. 8	18½
V8-65, 75, 1938	26	6 cyl., 1941, 42	17½	16, 1931, 1932	29	1703-5, 1939	22	Dict. 6, 1935	16½
16-90, 1938, 39, 40	30	V-8, 1942	22	16, 1933	34	1800, 1940	17	Com., 1935	21½
60S, 62, 72, 75, 1940	24½	GRAHAM		MARQUETTE		1801, 1940	18	Pres., 1935	21½
60S, 61, 62, 63, 67,		Cust. 8-34, 1931	26	1929	12	1803-4-5, 1940	20	Dict., 1936	14
75, 1941, 1942	25	8, 1931 to 1934	20	MERCURY		1806-7-8, 1940	20	Pres., 1936	17
CHEVROLET		6-74, 1935	15	8, 1939, 40	22	1900, 1941	15	Dict., 1937	13
1929 to 1933	10	6-73, 1935	17½	1941	25½	1901, 1941	17	Pres., 1937	15½
Std. 1934, 1935	10	8-72, 1935	18	1942	22	1903, 4, 5, 6, 7, 8,		Sta. Com., 1938	14½
Master 1934, 1935	11	8-75, 1935	20	NASH		1941	20	Pres., 1938, 39, 40	17
Std. & Master,		6-80, 1936	11	Twin 8, 890, 990		Clipper, 1941	17	9A, 10A, 1939, 40	14½
1936	15	6-90, SC-110, 1936	15	Big 6, 1932	17	2000, 10, 20, 1942	14	G, 2G, 3G, Champ.,	
Std. & Master,		6-85, 1937	11	Spe. 8, 1932	21	2001, 11, 21, 1942	17	1940, 41	10½
1937, 38, 39, 40, 41	14	6-95, SC-116,		Adv. Amb., 1932,		2003, 2, 3, 4, 5, 6,		11A, 1941	13
Stylemaster, Fleet-		SC-120, 1937	15	1933	22	7, 8, 1942	20	7C, 1941	15
master, 1942	15	6, 1938	13½	1120, 1933	19	PIERCE-ARROW		4G, 1942	10½
CHRYSLER		96 Spec. & Cus.,	14	Std. 1933, Spe., 1933	16	8, 1929 to 1934	26	12A, 1942	13
Six, 1932, 33, 34	16	1939-40	15	Big 6 1120, 1934	17½	12, 1932, 1933, 1934	38	8C, 1942	15
Roy. 8, 1933	19	97 Superch. Cus.,	14	Adv. 8 1280, 1934	21	8-845, 1935	28	TERRAPLANE	
Imp. 8, 1933	20	1939-40	15	Amb. 8 1290, 1934	22	12-1245-55, 1935	40	Six, 1934	18
Imp. Cust. 8, 1933	27	HUDSON		6, 1935, 1936	17½	8-1601, 1936 &		Six, 1935	16
Roy. 8 CU, 1934	23	6-63, 1936; 6-73,	20	400, 1935, 1936	18	8-1701, 1937	25	Six, 1936, 1937	13
CV, CX, 1934	23	1937	13	Adv. Amb., 1935	21	2-1602-03, 1936		VIKING	
6-C6, 1935	17	8-74, 75, 76, 77, 1937	20	Amb. Super 8, 1936	21	& 1702-3, 1937	38	1929, 1930	33
8-CZ, 1935	20	112, 1938	12	H, 1936, 1937	27	PLYMOUTH		WHIPPET	
8-C1, C2, C3, 1935	19	Terra., 1938	12½	Lafayette 400,		Up to 1931	14	96A, 1936	11½
CW, 1935	24	6, 1938, 39	12½	3710, 1937	20	1932	15	98A, 1930	15½
6-C7, 1936	19	8, 1938	17½	Amb. 6, 3720, 1937	17	1933	13	WILLYS	
8-C8, 1936	22	90, 98, 1939	12½	Amb. 8, 3780, 1937	18	1934	14	Eight	20
8-C9, C10, C11, 1936	17	93, 1939	12½	Lafayette, 1938,		1935	15	77, 1933-36	9
C-16, 1937	20	95, 97, 1939	17½	39, 1940	20	1935, 1936, 1937	15	1937, 1938, 39	11
C-14, 1937	22	40, 41, 43, 1940	13	Amb. 6, 1938	20	1938, 39, 40, 41	14	1940, 1941, 1942	11½
C-15, 1937	21			Amb. 8, 1938	18	1942	15	WILLYS KNIGHT	
C-17, 1937	17			3920, 1939	16	PONTIAC		70, 1926 to 1929	17
				3980, 1939	17	Up to 1928	10	87, 1930	17
				4020, 1940	17	1929, 1931, 1932	14	70A, 1928	16
				4080, 1940	18	1930	13	66D, 1931, 1932	17½
				4140, 1941	14	8, 1932	25	95, 1931, 1932	15½
						8, 1933, 1934	15		



FREEZING WEATHER AHEAD!

FOR the next few months, the majority of the country can expect some cold weather, and now is the time for repairmen to get their customers' cars in condition to take it. Snow, sleet and zero temperatures will be the rule rather than the exception, and how well the cars are conditioned to operate in that kind of weather will determine the degree of satisfaction owners will derive from their cars under those difficult operating conditions.

Anti-freeze treatment of the cooling system is undoubtedly the first thought that comes to mind when winter conditioning is mentioned. This year there has been considerable talk about a shortage of anti-freeze preparations, the reason being that many ingredients of the anti-freeze compounds are used in

Check your work against this list to be sure you've done everything needed to prepare customers' cars for the snow and zero cold to come

the manufacture of munitions or other articles of vital defense need. Because of this talk of shortage, many owners have already bought their normal winter's supply.

Be that as it may, the general opinion seems to be that the present supply of anti-freeze is enough to take care of a normal winter, and that there will be enough to go around if only enough is sold each

customer to protect the cooling system of his car against freezing at the normal temperature encountered during the average winter. It is a waste of anti-freeze to oversell the protection. For example, if the normal low temperature in a given area is zero, the customer should be sold enough anti-freeze to protect his car to

(Continued on page 54)



DEFENSE SERVICE ISSUE

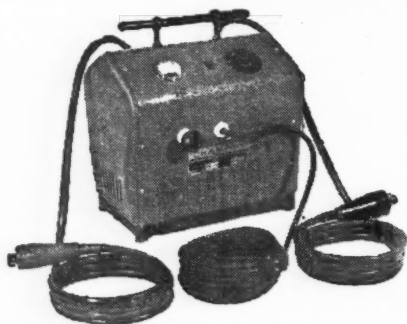
NEW

• • PARTS •

• TOOLS •

Portable Fast Battery Charger

One of the latest fast battery chargers to be placed on the market is the Champion High-Rate charger announced by Honeycutt Mfg. Co., Inc., 2715-17 Oak St., Kansas City, Mo. This charger is portable, making it possible to use it on service calls



wherever 110-volt current is available. It has a high-rate charge of 60 amperes, a taper charge of 25 amperes, and can also be used as a conventional charger for charging five to ten batteries in parallel. It is also equipped with a high rate breakdown for cycling the battery, and a test circuit for testing each cell individually.

Liquid Gasket



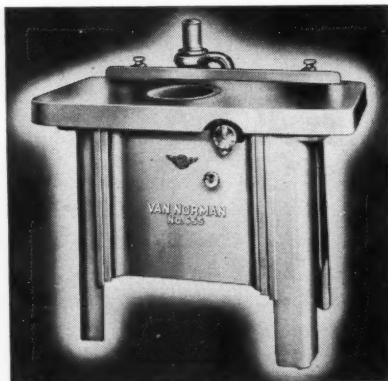
It is claimed that Aeromotive Gasket Maker is non-drying, and will

R. M. Hollingshead Corp., Camden, N. J., has introduced Aeromotive Gasket Maker, a liquid-type gasket compound that can be applied with a brush. It can be used for mechanical joints with or without the regular gasket, to produce a permanent, flexible

not shrink or crack, and is not affected by hot or cold water, oil, kerosene, gasoline or many other fluids.

Surface Grinder

The No. 555 multi-purpose horizontal surface grinder recently announced by Van Norman Machine Tool Co., 160 Wilbraham Ave., Springfield, Mass., is designed for reconditioning cylinder heads that have become warped or distorted, for increasing compression ratios, and for a number of other surface grinding operations. It has an 11-in. grinding wheel mount-



ed at the center of the table, and rotates in a horizontal plane, driven by a 2 hp. motor. The level of the wheel is adjusted by micrometer controls. The work is simply moved back and forth on the table over the wheel, no set-up tools being needed. Chips and dust are removed from the table by a ½ hp. vacuum cleaner mounted at the rear.

Oil Filters Added to Line

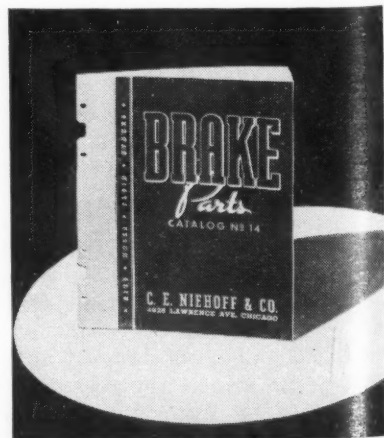
The line of AC oil filters made by the AC Spark Plug Division of General Motors Corp., Flint, Mich., has been increased by the addition of two new filters for Chevrolet installation. Model LC-4 provides a



low-priced filter installation for passenger cars only, and carries a smaller filter cartridge; Model LC-1 is for installation on passenger cars or trucks, and has a larger capacity filtering element. Both models use the Kleeer Kleen oil filter element, which is said to be non-channeling, non-disintegrating, and to remove the most minute particles of dirt, sludge, dust and metal.

Brake Parts Catalog

The C. E. Niehoff & Co., 4925 Lawrence Ave., Chicago, Ill., has issued a new 80-page catalog covering the



W PROFIT MAKERS

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complete line of hydraulic brake parts made by the company. It gives complete passenger car and truck specifications, a section of tips for trouble shooting on hydraulic brakes and valuable service hints. The catalog will be sent without charge to any parts jobber sending a request on his letter head.

Wheel Bearing Packer

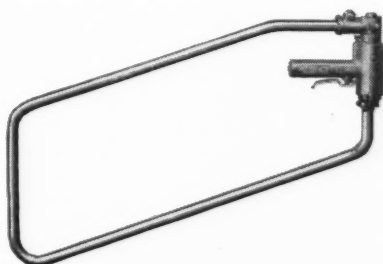
The Alhberg Bearing Co., 3098 West 47th St., Chicago, Ill., has developed a new front-wheel bearing packer that will handle all bearings from 1½ in. in diameter up to 7 in.



The unit is designed to carry a supply of 5 lb. of grease in the base. The bearing is placed in the top of the cylinder, pressure is applied to the lever, and grease is forced completely through the bearing.

Pneumatic Hammer for Body Service

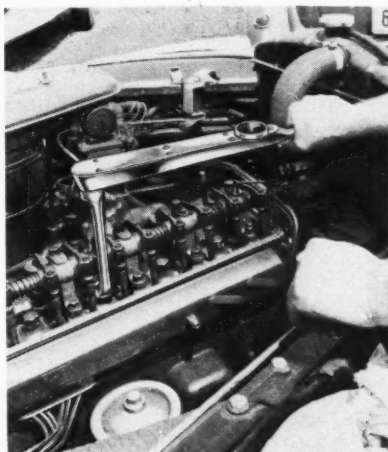
The Seiden Pneumatic Tool Co., Jackson, Mich., has announced the introduction of a new deep-throated yoke for use in connection with the Seiden pneumatic hammer when being used for turret top work or work on the new style deep and wide fen-



ders. The large yoke enables the operator to use the pneumatic hammer in places heretofore impossible. It can be purchased separately as part PH-48 for those shops which already have the Seiden hammer, or it can be purchased complete with the hammer. Another feature of this new yoke is that a special swivel mounting permits the hammer to be turned to any point in a complete circle. A variety of other yokes and anvils is available for use with the hammer.

Snap-On Has New Torque Wrench

Snap-On Tools Corp., Kenosha, Wis., has announced a new torque wrench known as the Torqometer. It is said to contain an entirely new principle for measuring the tension of



nuts and bolts. There are no springs and no bars with predetermined elasticity, and the working parts are said to be entirely free of inherent friction. The scale is graduated from zero to 150 ft.-lb. The new model is identified as TQ-150.

New Line of Tire Groovers

A new line of tire-grooving tools has been announced by Kwick-Kut Mfg. Co., 3828 Arsenal St., St. Louis, Mo. The new line is known as the Rider Series, and is available in wattages from 50 to 300. All models use both the company's patented flat visible



pattern blade and also the open or ribbon blade. The combination heads require no extra attachments, and the change from one type blade to the other is made instantly. Prices assigned to the new line are said to be the lowest in the history of the company.

Extinguishes Magnesium Fires

The Pyrene Mfg. Co., 560 Belmont Ave., Newark, N. J., has announced a new extinguishing agent that puts out magnesium fires in industry and in incendiary bombs. This new substance is known as Pyrene G-1 Fire Extinguishing Powder, and is spread

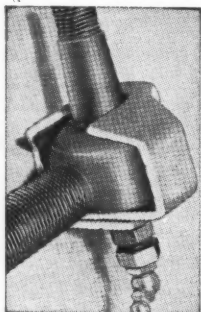


• • **PARTS** •

• **TOOLS** • •

on the fire with a scoop or shovel. It contains a material which, when heated, forms a heavy, air-excluding, fire-smothering vapor. It is said to be harmless to machinery.

Adjusts Worn Tie Rod Ends

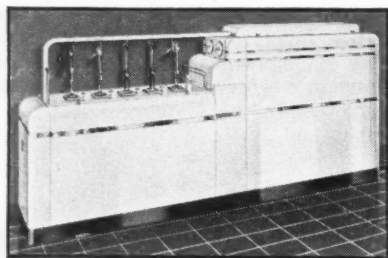


For speedy adjustment of slightly worn tie-rod ends, the Bear Mfg. Co., Rock Island, Ill., has developed the "Jointite" tie rod adjuster. It fits practically all popular models, and is easy to install. It is being made available for

those customers who won't spend extra money for tie-rod replacements.

Modern Lubricators

The latest in modern lubricating equipment is represented by the Lincoln Masterluber illustrated, and made by the Lincoln Engineering Co., 5701 Natural Bridge Ave., St. Louis, Mo. It is designed for dispensing chassis and gear lubricants direct from the 100-lb. original refinery drum. The



higher portion of the cabinet houses air-motor-operated Lubriguns as well as the refinery drums. The lower portion houses two chassis and two gear lubricant delivery hoses and one air hose.

Mileage Tester

A new type of gasoline mileage tester has been introduced by E. A. Stromberg Co., Inc., 1160 N. Howe St., Chicago, Ill. The scale is calibrated to read gasoline consumption in gallons per hour and the corresponding reading in miles per gallon when compared with the speedometer reading. Incorporated in the instrument is a vacuum gage and a pressure gage for testing fuel pump pressure.

Display Rack

Pick Mfg. Co., West End, Wis., is offering an attractive display rack



free with the purchase of an assortment of Pick replacement oil filter cartridges.

Fender Iron Has Many Attachments

The CP fender iron, recently announced by the Chicago Pneumatic Tool Co., 6 East 44th St., New York City, is a light-weight, air-operated hammer for smoothing out dents, wrinkles and rough spots in fenders, tops and other sheet-metal parts. A large assortment of dollies is avail-



able, and also a large assortment of yokes for practically every kind of job. Standard equipment includes two yokes, two upper dies and four dollies, 50-ft. hose with fittings, and one wood die rack. Optional equipment, in addition to the yokes, includes sheet metal cutter, scraper chisel and bead dies.

Battery Cover

To make batteries on display more attractive, and at the same time to keep them clean and new-looking, Globe-Union, Inc., 900 E. Keefe Ave., Milwaukee, Wis., has developed a slip-cover made of transparent Pliofilm. This cover slips over the top of the battery, as shown, and is held in place by an elastic band in the edge of the cover. Covers are said to be tough, acid-proof and washable, so that they should last a long time.



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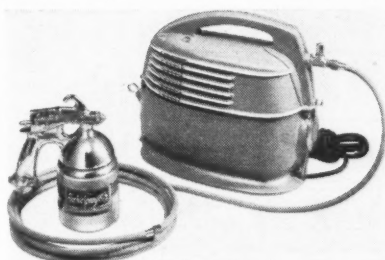
J-M Has New Manual

The Eighth Edition of the Brake Reliner's Manual has just come off the press, edited by Johns-Manville Corp., 22 East 40th St., New York City. It contains up-to-date information about passenger car brakes, with illustrations and linkage diagrams, and complete adjusting information. Also gives instructions for selecting and applying the correct brake lining. Includes a trouble-shooting section with charts covering all types of brake systems.

This new manual is available to users of Johns-Manville brake linings through their J-M distributors.

Paint-Spraying Outfit

A new, portable paint-spraying outfit has been introduced by The Electric Sprayit Co., Sheboygan, Wis. This compressor unit has an air delivery of 2.75 cu. ft. per min. at 40 lb. spraying pressure, and is powered by a



¼-hp. motor. Has built-in oil and moisture filter. Gun body and cover are made of die cast aluminum alloy, and the one-quart container is also aluminum. Gun has X-type air nozzle and fluid tip combination for best results with lacquer, varnish, shellac or resinous materials.

Ratchet Adaptor

The Herbrand Corp., Fremont, Ohio, has announced a universal ratchet adaptor, which quickly converts any socket, extension, flex-handle, T-handle, speeder or any



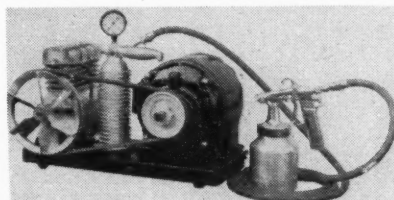
socket combination into a perfect ratcheting tool. The ratchet is 2 in. high, 1½ in. in diameter, and is equipped with ½ in. square drive for use with any standard unit. Identified as catalog No. S-11A.

Solvent Cleaner

The Park Chemical Co., 8074 Military Ave., Detroit, Mich., has introduced a special cleaner for carburetor and fuel pump parts, known as the Parko Solvent Cleaner. It cleans by cold immersion, and is said to be extremely fast in action, and to remove carbon deposits, gummy residues, grease, paint, dirt, etc., quickly and to be non-corrosive.

New Compressor for Spraying Outfit

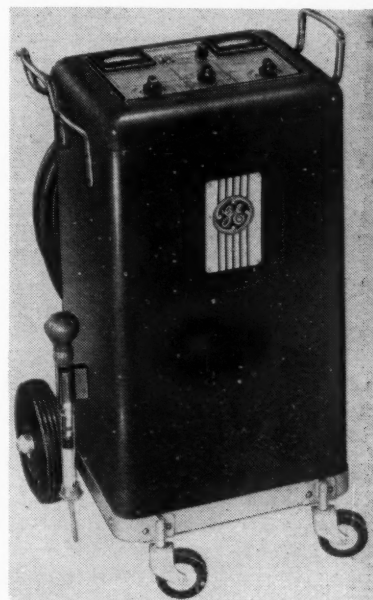
The Campbell-Hausfeld Co., Harrison, Ohio, has announced a new four-cylinder compressor unit for its heavy-duty paint-spraying outfit. The new compressor is 1¼ x 1½ in. bore and stroke, and has a drop-forged crank-



shaft with center main bearing. Its output is rated at 4 cu. ft. per min. at 50 lb. pressure.

GE Fast Charger

The General Electric Co., 1285 Boston Ave., Bridgeport, Conn., has developed a new rapid-type battery charger known as the "Eighty De-Luxe." It has a high initial charging rate of 80 amps., which automatically changes to a lower rate and then automatically shuts off. A high-rate dis-



charge tester is built in to the unit. Large, rubber-tired wheels make the unit easily portable. Control panel is on top of the charger, with all instructions embossed on the panel.

New Arc Welder

The US Electric Welder Corp., 1224 W. Bancroft St., Toledo, Ohio, has recently announced a new arc welder. Control is provided by a single dial, calibrated to welding amperages ranging from 10 to 100. (Continued on Page 84)

General and Engine Specifications

Line Number	PASSENGER CAR MAKE AND MODEL	Wheelbase (In.)	Tread (In.)		Tire Size (In.)	Gear Ratio	No. of Cylinders, Bore and Stroke (In.)	Valve Arrangement	Cylinder Head Material	Piston Displacement (Cu. In.)	Taxable Horsepower	Maximum Brake Hp. at Specified R.P.M.	Maximum Torque (Lb.-Ft.) at Specified R.P.M.	Compression Ratio (to 1)		Pressure (Lb.)	At What R.P.M.	Weight per Cu. In. 5 Pass., 4 door Sedan *	Weight per Hp. 5 Pass., 4 door Sedan *	Hp. per Cu. In.	Crankshaft Revolutions per Mile †	Performance Factor ††	Line Number
			Front	Rear										Standard	Optional								
1	Buick-Special	42-40A	59 1/2	62 1/2	6.50/15	4.10	8-3 1/2 x 4 1/4	—	IL	248.0	30.6	110-3400	200-2000	6.00	6.30	112	CS	16.73	37.73	.44	2985	34.5	1
2	Buick-Ex. Spec.	42-40B	59 1/2	61 1/2	6.50/16	4.40	8-3 1/2 x 4 1/4	—	IL	248.0	30.6	110-3400	200-2000	6.00	6.30	112	CS	17.18	38.73	.44	3203	36.1	2
3	Buick-Super	42-50	59 1/2	61 1/2	6.50/16	4.40	8-3 1/2 x 4 1/4	—	IL	248.0	30.6	110-3400	200-2000	6.00	6.30	112	CS	17.70	37.20	.44	3203	35.0	3
4	Buick-Century	42-60	59 1/2	62 1/2	6.50/15	3.90	8-3 1/2 x 4 1/4	—	IL	320.2	37.8	165-3800	278-2200	6.70	7.00	115	CS	14.26	27.67	.51	2943	38.6	4
5	Buick-Roadmaster	42-70	59 1/2	62 1/2	7.00/15	4.10	8-3 1/2 x 4 1/4	—	IL	320.2	37.8	165-3800	278-2200	6.70	7.00	115	CS	14.52	28.18	.51	2943	38.6	5
6	Buick-Limited	42-90	59 1/2	63 1/2	7.00/15	4.55	8-3 1/2 x 4 1/4	—	IL	320.2	37.8	165-3800	278-2200	6.70	7.00	115	CS	16.13	31.30	.51	2943	38.6	6
7	Cadillac	61, 62, 63, 60S	59 1/2	63 1/2	7.00/15	3.77	8-3 1/2 x 4 1/4	—	IL	346.0	39.2	150-3400	233-1700	7.25	6.25	182	1000	13.34	30.77	.43	2743	39.9	7
8	Cadillac	67, 75	59 1/2	62 1/2	7.50/16	4.27	8-3 1/2 x 4 1/4	—	IL	346.0	39.2	150-3400	233-1700	7.25	6.25	182	1000	15.17	35.00	.43	2904	37.0	8
9	Chevrolet	42-40A	57 1/2	60 1/2	6.00/16	4.11	6-3 1/2 x 3 3/4	—	IL	216.5	29.4	90-3300	174-1200	6.50	No	125	CS	16.74	40.28	.42	3066	35.4	9
10	Chrysler-Roy. & Win.	C-36	57 1/2	60 1/2	6.25/16	3.90	6-3 1/2 x 3 3/4	—	IL	230.6	29.4	120-3800	200-1600	6.60	No	125	CS	15.96	33.33	.42	3066	35.4	10
11	Chrysler-Sar. & N.Y.	C-36	57 1/2	61 1/2	7.00/15	3.91	6-3 1/2 x 3 3/4	—	IL	323.5	33.8	140-3800	260-1800	6.80	No	125	CS	13.60	31.43	.43	2350	34.9	11
12	Chrysler-Crown Imp.	C-37	57 1/2	61 1/2	7.00/15	3.58	6-3 1/2 x 3 3/4	—	IL	323.5	33.8	140-3800	260-1800	6.80	No	125	CS	13.60	31.43	.43	2350	34.9	12
13	Crosley	42-80	40	40	4.25/12	5.14	2-3 1/2 x 2 1/4	—	IL	236.6	28.3	112-3800	20-2800	5.60	No	80	240	41.78	122.92	.34	5191	34.5	13
14	De Soto-DeL. & Cust.	S-10	57 1/2	60 1/2	6.25/16	3.90	6-3 1/2 x 3 3/4	—	IL	236.6	28.3	112-3800	20-2800	5.60	No	80	240	41.78	122.92	.34	5191	34.5	14
15	Dodge-DeL. & Cust.	D-22	57 1/2	60 1/2	6.25/16	3.90	6-3 1/2 x 3 3/4	—	IL	236.6	28.3	112-3800	20-2800	5.60	No	80	240	41.78	122.92	.34	5191	34.5	15
16	Ford-Six	42-40A	58	60	6.00/16	4.10	6-3 1/2 x 3 3/4	—	IL	226.0	28.1	90-3300	180-1200	6.70	No	165	2000	15.63	39.25	.40	2320	34.8	16
17	Ford-Eight	42-40B	58	60	6.00/16	3.78	6-3 1/2 x 3 3/4	—	IL	226.0	28.1	90-3300	180-1200	6.70	No	165	2000	15.63	39.25	.40	2320	34.8	17
18	Ford-Six & DeL.	42-40B	58	60	6.00/16	3.78	6-3 1/2 x 3 3/4	—	IL	226.0	28.1	90-3300	180-1200	6.70	No	165	2000	15.63	39.25	.40	2320	34.8	18
19	Hudson-Super. & Com. 6	21, 22	56 1/2	59 1/2	6.50/15	4.55	6-3 1/2 x 3 3/4	—	IL	175.0	21.6	92-4000	138-1400	7.25	No	100	CS	16.08	37.39	.53	3508	34.4	19
20	Hudson-Super. & Com. 6	21, 22	56 1/2	59 1/2	6.50/15	4.55	6-3 1/2 x 3 3/4	—	IL	175.0	21.6	92-4000	138-1400	7.25	No	100	CS	16.08	37.39	.53	3508	34.4	20
21	Hudson-Super. & Com. 6	21, 22	56 1/2	59 1/2	6.50/15	4.55	6-3 1/2 x 3 3/4	—	IL	175.0	21.6	92-4000	138-1400	7.25	No	100	CS	16.08	37.39	.53	3508	34.4	21
22	Hudson-Super. & Com. 6	21, 22	56 1/2	59 1/2	6.50/15	4.55	6-3 1/2 x 3 3/4	—	IL	175.0	21.6	92-4000	138-1400	7.25	No	100	CS	16.08	37.39	.53	3508	34.4	22
23	Hudson-Super. & Com. 6	21, 22	56 1/2	59 1/2	6.50/15	4.55	6-3 1/2 x 3 3/4	—	IL	175.0	21.6	92-4000	138-1400	7.25	No	100	CS	16.08	37.39	.53	3508	34.4	23
24	Hudson-Super. & Com. 6	21, 22	56 1/2	59 1/2	6.50/15	4.55	6-3 1/2 x 3 3/4	—	IL	175.0	21.6	92-4000	138-1400	7.25	No	100	CS	16.08	37.39	.53	3508	34.4	24
25	Hudson-Super. & Com. 6	21, 22	56 1/2	59 1/2	6.50/15	4.55	6-3 1/2 x 3 3/4	—	IL	175.0	21.6	92-4000	138-1400	7.25	No	100	CS	16.08	37.39	.53	3508	34.4	25
26	Hudson-Super. & Com. 6	21, 22	56 1/2	59 1/2	6.50/15	4.55	6-3 1/2 x 3 3/4	—	IL	175.0	21.6	92-4000	138-1400	7.25	No	100	CS	16.08	37.39	.53	3508	34.4	26
27	Hudson-Super. & Com. 6	21, 22	56 1/2	59 1/2	6.50/15	4.55	6-3 1/2 x 3 3/4	—	IL	175.0	21.6	92-4000	138-1400	7.25	No	100	CS	16.08	37.39	.53	3508	34.4	27
28	Lincoln-Zeph. & Cont.	42-40A	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	28
29	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	29
30	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	30
31	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	31
32	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	32
33	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	33
34	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	34
35	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	35
36	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	36
37	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	37
38	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	38
39	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	39
40	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	40
41	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	41
42	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	42
43	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	43
44	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	44
45	Lincoln-Zeph. & Cont.	42-40B	59	60	7.00/15	4.22	12-2 9/32 x 3 7/8	—	IL	306.0	41.4	130-3800	200-1600	6.60	No	110	350	15.28	34.65	.44	2992	37.9	45

ABBREVIATIONS:

†—Computed on basis of tire revolutions per mile multiplied by rear axle ratio of cheapest 5-passenger, 4-door sedan
 ††—Computed on basis of displacement, rear axle ratio, effective tire diameter and shipping weight plus 500 pounds of lowest priced 5-passenger 4-door sedan

*—Performance data based on shipping weights plus 500 pounds
 (a)—Model 61, 63-126 in.; 62-129 in.; 60S-133 in.
 (b)—Model 67-130 in.; 75-136 in.
 (c)—Model 61, 63-214 in.; 62-219 in.; 60S-223 in.
 (d)—Model 67-223 in.; 75-226 in.
 (e)—Model 61-198 in.; Deluxe Six-200 in.
 (f)—Model Six-5.50 16; Deluxe Six-6.00 16

(g)—Model Super-Six-6.00/16; Comm. Six-6.25/16
 (h)—Model 24-6.25/16; Model 25-6.50/15
 (i)—Model 2021-6.00 in.; Model 2001-6.01 in.
 (j)—Model 2004-7.50 in.; Model 2003-8.23 in.
 (k)—Model 2004-7.50 in.; Model 2003-8.23 in.
 (l)—Model 2004-7.50 in.; Model 2003-8.23 in.
 (m)—Model 2004-7.50 in.; Model 2003-8.23 in.
 (n)—Model 2004-7.50 in.; Model 2003-8.23 in.
 (o)—Model 2004-7.50 in.; Model 2003-8.23 in.

(p)—Model 2006-215 1/2 in.; 2007-217 1/2 in.; 2008-227 1/2 in.
 (r)—Model 2001-6.50/15; 2021-7.00/15
 (s)—Model 2003-6.23-7.00/15; 2004-6.23-7.00/15
 (t)—4.10 on Model 2001; 4.09 on 2021
 (u)—3.92 on Models 2003-6.23-4.09 on 2004-7.43 on 2005-8
 (v)—3.92 on Models 2003-6.23-4.09 on 2004-7.43 on 2005-8
 CI—Cast Iron CS—Cranking Speed I—In Head L—In Line V—Vee Type No—No or None

Pistons, Rings, Connecting Rods

NOVEMBER, 1941

Line Number	PASSENGER CAR MAKE AND MODEL	No. of Cylinders, Bore and Stroke	PISTONS				PISTON RINGS				WRIST PIN				CONNECTING RODS											
			Make	Material	Features	Weight (Oz.) Without Rings, Pin or Bushing	Length (In.)	Clearance—Average (In.)		Ring Groove Depth (In.)	Oil			Length (In.)	Diameter (In.)	Locked In—	Average Clearance (In.)	Length (In.)—Center to Center	Material (S.A.E. No.)	Weight (Oz.)	Line Number					
								Top Land	Top of Skirt		Number Used	Width (In.)	Average Gap (In.)									Maximum Wall Thickness (In.)	Number Used	Width (In.)	Average Gap (In.)	Maximum Wall Thickness (In.)
1	Buick-Special	8-3 1/4x4 1/8	Own	CI	CT, Lf	23.73	4 1/4	.0190	.0017	.167	.167	.167	.015	.140	.8126	R	.00035	7 7/8	X-1345	28.46	1					
2	Buick-Ex. Spec.	8-3 1/4x4 1/8	Own	CI	CT, Lf	23.73	4 1/4	.0190	.0017	.167	.167	.167	.015	.140	.8126	R	.00035	7 7/8	X-1345	28.46	2					
3	Buick-Super	8-3 1/4x4 1/8	Own	CI	CT, Lf	23.73	4 1/4	.0190	.0017	.167	.167	.167	.015	.140	.8126	R	.00035	7 7/8	X-1345	28.46	3					
4	Buick-Century	8-3 1/4x4 1/8	A-B	AI	CT, Trs, An	18.65	4 1/4	.0300	.0026	.182	.182	.182	.015	.150	.8746	R	.00035	8 1/4	1045	35.58	4					
5	Buick-Roadmaster	8-3 1/4x4 1/8	A-B	AI	CT, Trs, An	18.65	4 1/4	.0300	.0026	.182	.182	.182	.015	.150	.8746	R	.00035	8 1/4	1045	35.58	5					
6	Buick-Limited	8-3 1/4x4 1/8	A-B	AI	CT, Trs, An	18.65	4 1/4	.0300	.0026	.182	.182	.182	.015	.150	.8746	R	.00035	8 1/4	1045	35.58	6					
7	Cadillac	8-3 1/4x4 1/2	A-B	AI	Trs, An	18.32	4 1/4	.0196	.0026	.160	.160	.160	.012	.150	.8746	R	.00035	8 3/4	1035	37.68	7					
8	Cadillac	8-3 1/4x4 1/2	A-B	AI	Trs, An	18.32	4 1/4	.0196	.0026	.160	.160	.160	.012	.150	.8746	R	.00035	8 3/4	1035	37.68	8					
9	Chevrolet	6-3 1/2x3 1/2	Own	CI	Fh, O, Sp	26.90	3 3/4	.0165	SeF	.178	.158	.158	.010	.155	.8647	R	.00040	6 1/8	DFS	30.70	9					
10	Chrysler-Roy & Win.	6-3 1/2x4 1/2	Own	CI	C, Rb	16.30	3 1/2	.0090	.0013	.182	.181	.181	.011	.145	.8647	R	.00040	7 7/8	MFS	25.65	10					
11	Chrysler-Sat. & N.Y.	6-3 1/2x4 1/2	Own	AI	Us, C	16.30	3 1/2	.0152	(g)	.172	.169	.169	.011	.145	.8647	R	.00040	9	MFS	25.65	11					
12	Chrysler-Crown Imp.	6-3 1/2x4 1/2	Own	CI	Us, C	16.30	3 1/2	.0152	(g)	.172	.169	.169	.011	.145	.8647	R	.00040	9	MFS	25.65	12					
13	Crosley	2-3x2 1/2	Own	CI	C, Rb	17.50	3 1/2	.0090	.0043	.158	.158	.138	.015	.135	.7497	F	.00020	4 3/4	1045	18.0	13					
14	De Soto-Del. & Cust.	6-3 1/4x4 1/8	Own	AI	C, Fh	16.23	3 1/2	.0175	.0006	.174	.181	.181	.011	.145	.850	F	.00040	8	MFS	25.65	14					
15	Dodge-Del. & Cust.	6-3 1/4x4 1/8	Own	AI	Us, C, Tp, Au	16.23	3 1/2	.0175	.0006	.174	.171	.171	.011	.145	.850	F	.00040	7 1/8	MFS	25.65	15					
16	Ford-Six	6-3 30x4.40	Own	CS		16.23														16	16					
17	Ford-Eight	8-3 30x3.75	Own	CS		11.82														17	17					
18	Hudson-Six & Del.	6-3 3x4 1/8	Own	CS		16.00	2 3/4	.0200	.0012	.146	.146	.146	.010	.128	.850	F	.0005	7	MFS	25.65	18					
19	Hudson-Super. & Com. 6	6-3 3x5	Own	CS		16.00	2 3/4	.0200	.0012	.146	.146	.146	.010	.128	.850	F	.0005	7	MFS	25.65	19					
20	Hudson-Super. 8	6-3 3x4 1/8	Own	CS		16.00	2 3/4	.0200	.0012	.146	.146	.146	.010	.128	.850	F	.0005	7	MFS	25.65	20					
21	Hudson-Com. Cust. 8	6-3 3x4 1/8	Own	CS		16.00	2 3/4	.0200	.0012	.146	.146	.146	.010	.128	.850	F	.0005	7	MFS	25.65	21					
22	Lincoln-Zeph. & Cont.	12-2 93x3.75	Own	CS		12.70														22	22					
23	Lincoln-Custom	12-2 93x3.75	Own	CS		12.70														23	23					
24	Mercury	8-3 31x3 1/2	Own	CS		12.70														24	24					
25	Nash-Ambassador 600	42-40	Own	AI		16.00	3 1/8	.0175	.0015	.175	.155	.155	.015	.145	.8745	F	.0005	6 3/4	Steel	24.00	25					
26	Nash-Ambassador 8	42-80	Own	AI		16.00	3 1/8	.0175	.0015	.175	.155	.155	.015	.145	.8745	F	.0005	6 3/4	Steel	24.00	26					
27	Nash-Ambassador 8	42-80	Own	AI		16.00	3 1/8	.0175	.0015	.175	.155	.155	.015	.145	.8745	F	.0005	6 3/4	Steel	24.00	27					
28	Oldsmobile-Special Six	66	Own	AS	Tp	27.00	3 3/4	.0265	.0012	.171	.187	.187	.011	.155	.850	P	.00045	7 1/8	X-1335	28.40	28					
29	Oldsmobile-Dynalene Six	76	Own	AS	Tp	27.00	3 3/4	.0265	.0012	.171	.187	.187	.011	.155	.850	P	.00045	7 1/8	X-1335	28.40	29					
30	Oldsmobile-Special 8	68	Own	AS	Tp	24.00	3 3/4	.0255	.0012	.171	.171	.171	.011	.150	.850	P	.00045	7 1/8	X-1335	28.30	30					
31	Oldsmobile-Dynalene 8	78	Own	AS	Tp	24.00	3 3/4	.0255	.0012	.171	.171	.171	.011	.150	.850	P	.00045	7 1/8	X-1335	28.30	31					
32	Oldsmobile-Custom 8	98	Own	AS	Tp	24.00	3 3/4	.0255	.0012	.171	.171	.171	.011	.150	.850	P	.00045	7 1/8	X-1335	28.30	32					
33	Packard-Six	2000-2020	Own	CI	C	25.12	3 1/2	.0024	.0024	.188	(l)	(l)	.012	.135	.850	P	.00045	7 1/8	DFS	31.60	33					
34	Packard-Eight	2001-2021	Own	CI	C	22.75	3 1/2	.0024	.0024	.188	(m)	(m)	.012	.135	.850	P	.00045	7 1/8	DFS	31.60	34					
35	Packard-Six	2002-23-4-5	AI	AI	Au, C, Tp	20.25	3 3/8	.0007	.0007	.181	(n)	(n)	.012	.135	.850	P	.00045	7 1/8	DFS	31.60	35					
36	Packard-Sup. 8	2006-7-8	AI	AI	Au, C, Tp	20.25	3 3/8	.0007	.0007	.181	(n)	(n)	.012	.135	.850	P	.00045	7 1/8	DFS	31.60	36					
37	Plymouth-Del. & Spec. DL	P-14	Own	CI	C, Rb	25.29	3 3/4	.0105	(g)	.174	.171	.171	.011	.145	.850	F	.00040	7 1/8	MFS	36.96	37					
38	Pontiac-Deluxe 6	42-25	Own	CN	Tp	27.04	3 3/4	.0235	.0040	.197	.181	.181	.010	.155	.850	F	.00040	7 1/8	MFS	36.96	38					
39	Pontiac-Stream 6	42-26	Own	CN	Tp	27.04	3 3/4	.0235	.0040	.197	.181	.181	.010	.155	.850	F	.00040	7 1/8	MFS	36.96	39					
40	Pontiac-Deluxe 8	42-27	Own	CN	Tp	24.64	3 1/2	.0235	.0050	.188	.158	.158	.012	.150	.850	P	.00030	7 1/8	DFS	31.68	40					
41	Pontiac-Stream 8	42-28	Own	CN	Tp	24.64	3 1/2	.0235	.0050	.188	.158	.158	.012	.150	.850	P	.00030	7 1/8	DFS	31.68	41					
42	Studebaker Champion 6	42	Own	CI	C	24.00	3 1/2	.0075	SeF	.170	(e)	(e)	.012	.135	.850	R	.00020	6 3/8	DFS	20.48	42					
43	Studebaker-Commander 6	12A	Own	CI	C	24.00	3 1/2	.0075	SeF	.168	.172	.172	.012	.135	.850	R	.00020	6 3/8	DFS	20.48	43					
44	Studebaker-President 8	8C	Own	CI	C	24.00	3 1/2	.0075	SeF	.185	.146	.146	.017	.125	.850	R	.00020	8	DFS	33.30	44					
45	Willys-American	442	Own	CI	O, Tp	24.00	3 1/2	.011	.0020	.171	.161	.161	.010	.140	.850	R	.00035	9 1/8	Steel	34.00	45					

ABBREVIATIONS:
 (a) Upper 160, Lower 140
 (b) Upper 170, Lower 150
 (c) .0024 Bottom of Skirt
 (d) Top 181; Lower 151
 (e) Upper 175; Lower 150
 (f) Bottom of Skirt at Maximum Diameter .0008 to .0015
 (g) No. 1-127; No. 2-107
 (h) No. 1-127; No. 2-116
 (i) No. 1-157; No. 2-116
 (j) Third 124; Fourth 186
 (k) Top 150; Middle 135
 (l) No. 1-1867; No. 2-1617
 (m) No. 1-1735; No. 2-1565
 (n) No. 1-1882; No. 2-1837
 (o) No. 1-1882; No. 2-1837
 (p) No. 1-165-175; No. 2-140-150
 (q) No. 1-165-175; No. 2-140-150
 (r) No. 1-162-162; No. 2-135-145
 (s) Top 161 to 168; Middle 140 to 153
 (t) One 3/4; one 1/2
 (u) Top 150; Middle 135
 (v) Top 150; Middle 135
 (w) Top 150; Middle 135
 (x) Top 150; Middle 135
 (y) Top 150; Middle 135
 (z) Top 150; Middle 135
 (aa) Top 150; Middle 135
 (ab) Top 150; Middle 135
 (ac) Top 150; Middle 135
 (ad) Top 150; Middle 135
 (ae) Top 150; Middle 135
 (af) Top 150; Middle 135
 (ag) Top 150; Middle 135
 (ah) Top 150; Middle 135
 (ai) Top 150; Middle 135
 (aj) Top 150; Middle 135
 (ak) Top 150; Middle 135
 (al) Top 150; Middle 135
 (am) Top 150; Middle 135
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 (bp) Top 150; Middle 135
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 (bs) Top 150; Middle 135
 (bt) Top 150; Middle 135
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 (bw) Top 150; Middle 135
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 (ca) Top 150; Middle 135
 (cb) Top 150; Middle 135
 (cc) Top 150; Middle 135
 (cd) Top 150; Middle 135
 (ce) Top 150; Middle 135
 (cf) Top 150; Middle 135
 (cg) Top 150; Middle 135
 (ch) Top 150; Middle 135
 (ci) Top 150; Middle 135
 (cj) Top 150; Middle 135
 (ck) Top 150; Middle 135
 (cl) Top 150; Middle 135
 (cm) Top 150; Middle 135
 (cn) Top 150; Middle 135
 (co) Top 150; Middle 135
 (cp) Top 150; Middle 135
 (cq) Top 150; Middle 135
 (cr) Top 150; Middle 135
 (cs) Top 150; Middle 135
 (ct) Top 150; Middle 135
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 (cv) Top 150; Middle 135
 (cw) Top 150; Middle 135
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 (cz) Top 150; Middle 135
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 (dj) Top 150; Middle 135
 (dk) Top 150; Middle 135
 (dl) Top 150; Middle 135
 (dm) Top 150; Middle 135
 (dn) Top 150; Middle 135
 (do) Top 150; Middle 135
 (dp) Top 150; Middle 135
 (dq) Top 150; Middle 135
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 (fp) Top 150; Middle 135
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 (ft) Top 150; Middle 135
 (fu) Top 150; Middle 135
 (fv) Top 150; Middle 135
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Connecting Rod and Crankshaft Bearings

CONNECTING ROD BEARINGS										CRANKSHAFT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Line Number	Crankpin Journal	Diameter and Length (In.)	Lower Bearing				Vibration Damper	Counterweights	End Thrust taken by	Amount of End Play (In.)	Type	Material	Clearance (In.)	Type of Shim	Diameter and Length																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
			Material	Average Clearance (In.)	Average End Play (In.)	Type of Shim									Type of Bearing	Rods and Pins Removed from	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
1	Buick-Special	42-40A	Bab	.0013	.0075	So	Spun	A	Yes	8	C	.005	SI	Du	.0016	So	2.683x2.684	2.714x2.717	2.745x2.746	2.776x2.777	2.807x2.808	2.838x2.839	2.869x2.870	2.900x2.901	2.931x2.932	2.962x2.963	2.993x2.994	3.024x3.025	3.055x3.056	3.086x3.087	3.117x3.118	3.148x3.149	3.179x3.180	3.210x3.211	3.241x3.242	3.272x3.273	3.303x3.304	3.334x3.335	3.365x3.366	3.396x3.397	3.427x3.428	3.458x3.459	3.489x3.490	3.520x3.521	3.551x3.552	3.582x3.583	3.613x3.614	3.644x3.645	3.675x3.676	3.706x3.707	3.737x3.738	3.768x3.769	3.799x3.800	3.830x3.831	3.861x3.862	3.892x3.893	3.923x3.924	3.954x3.955	3.985x3.986	4.016x4.017	4.047x4.048	4.078x4.079	4.109x4.110	4.140x4.141	4.171x4.172	4.202x4.203	4.233x4.234	4.264x4.265	4.295x4.296	4.326x4.327	4.357x4.358	4.388x4.389	4.419x4.420	4.450x4.451	4.481x4.482	4.512x4.513	4.543x4.544	4.574x4.575	4.605x4.606	4.636x4.637	4.667x4.668	4.698x4.699	4.729x4.730	4.760x4.761	4.791x4.792	4.822x4.823	4.853x4.854	4.884x4.885	4.915x4.916	4.946x4.947	4.977x4.978	5.008x5.009	5.039x5.040	5.070x5.071	5.101x5.102	5.132x5.133	5.163x5.164	5.194x5.195	5.225x5.226	5.256x5.257	5.287x5.288	5.318x5.319	5.349x5.350	5.380x5.381	5.411x5.412	5.442x5.443	5.473x5.474	5.504x5.505	5.535x5.536	5.566x5.567	5.597x5.598	5.628x5.629	5.659x5.660	5.690x5.691	5.721x5.722	5.752x5.753	5.783x5.784	5.814x5.815	5.845x5.846	5.876x5.877	5.907x5.908	5.938x5.939	5.969x5.970	6.000x6.001	6.031x6.032	6.062x6.063	6.093x6.094	6.124x6.125	6.155x6.156	6.186x6.187	6.217x6.218	6.248x6.249	6.279x6.280	6.310x6.311	6.341x6.342	6.372x6.373	6.403x6.404	6.434x6.435	6.465x6.466	6.496x6.497	6.527x6.528	6.558x6.559	6.589x6.590	6.620x6.621	6.651x6.652	6.682x6.683	6.713x6.714	6.744x6.745	6.775x6.776	6.806x6.807	6.837x6.838	6.868x6.869	6.899x6.900	6.930x6.931	6.961x6.962	6.992x6.993	7.023x7.024	7.054x7.055	7.085x7.086	7.116x7.117	7.147x7.148	7.178x7.179	7.209x7.210	7.240x7.241	7.271x7.272	7.302x7.303	7.333x7.334	7.364x7.365	7.395x7.396	7.426x7.427	7.457x7.458	7.488x7.489	7.519x7.520	7.550x7.551	7.581x7.582	7.612x7.613	7.643x7.644	7.674x7.675	7.705x7.706	7.736x7.737	7.767x7.768	7.798x7.799	7.829x7.830	7.860x7.861	7.891x7.892	7.922x7.923	7.953x7.954	7.984x7.985	8.015x8.016	8.046x8.047	8.077x8.078	8.108x8.109	8.139x8.140	8.170x8.171	8.201x8.202	8.232x8.233	8.263x8.264	8.294x8.295	8.325x8.326	8.356x8.357	8.387x8.388	8.418x8.419	8.449x8.450	8.480x8.481	8.511x8.512	8.542x8.543	8.573x8.574	8.604x8.605	8.635x8.636	8.666x8.667	8.697x8.698	8.728x8.729	8.759x8.760	8.790x8.791	8.821x8.822	8.852x8.853	8.883x8.884	8.914x8.915	8.945x8.946	8.976x8.977	9.007x9.008	9.038x9.039	9.069x9.070	9.100x9.101	9.131x9.132	9.162x9.163	9.193x9.194	9.224x9.225	9.255x9.256	9.286x9.287	9.317x9.318	9.348x9.349	9.379x9.380	9.410x9.411	9.441x9.442	9.472x9.473	9.503x9.504	9.534x9.535	9.565x9.566	9.596x9.597	9.627x9.628	9.658x9.659	9.689x9.690	9.720x9.721	9.751x9.752	9.782x9.783	9.813x9.814	9.844x9.845	9.875x9.876	9.906x9.907	9.937x9.938	9.968x9.969	9.999x10.000	10.030x10.031	10.061x10.062	10.092x10.093	10.123x10.124	10.154x10.155	10.185x10.186	10.216x10.217	10.247x10.248	10.278x10.279	10.309x10.310	10.340x10.341	10.371x10.372	10.402x10.403	10.433x10.434	10.464x10.465	10.495x10.496	10.526x10.527	10.557x10.558	10.588x10.589	10.619x10.620	10.650x10.651	10.681x10.682	10.712x10.713	10.743x10.744	10.774x10.775	10.805x10.806	10.836x10.837	10.867x10.868	10.898x10.899	10.929x10.930	10.960x10.961	10.991x10.992	11.022x11.023	11.053x11.054	11.084x11.085	11.115x11.116	11.146x11.147	11.177x11.178	11.208x11.209	11.239x11.240	11.270x11.271	11.301x11.302	11.332x11.333	11.363x11.364	11.394x11.395	11.425x11.426	11.456x11.457	11.487x11.488	11.518x11.519	11.549x11.550	11.580x11.581	11.611x11.612	11.642x11.643	11.673x11.674	11.704x11.705	11.735x11.736	11.766x11.767	11.797x11.798	11.828x11.829	11.859x11.860	11.890x11.891	11.921x11.922	11.952x11.953	11.983x11.984	12.014x12.015	12.045x12.046	12.076x12.077	12.107x12.108	12.138x12.139	12.169x12.170	12.200x12.201	12.231x12.232	12.262x12.263	12.293x12.294	12.324x12.325	12.355x12.356	12.386x12.387	12.417x12.418	12.448x12.449	12.479x12.480	12.510x12.511	12.541x12.542	12.572x12.573	12.603x12.604	12.634x12.635	12.665x12.666	12.696x12.697	12.727x12.728	12.758x12.759	12.789x12.790	12.820x12.821	12.851x12.852	12.882x12.883	12.913x12.914	12.944x12.945	12.975x12.976	13.006x13.007	13.037x13.038	13.068x13.069	13.099x13.100	13.130x13.131	13.161x13.162	13.192x13.193	13.223x13.224	13.254x13.255	13.285x13.286	13.316x13.317	13.347x13.348	13.378x13.379	13.409x13.410	13.440x13.441	13.471x13.472	13.502x13.503	13.533x13.534	13.564x13.565	13.595x13.596	13.626x13.627	13.657x13.658	13.688x13.689	13.719x13.720	13.750x13.751	13.781x13.782	13.812x13.813	13.843x13.844	13.874x13.875	13.905x13.906	13.936x13.937	13.967x13.968	13.998x13.999	14.029x14.030	14.060x14.061	14.091x14.092	14.122x14.123	14.153x14.154	14.184x14.185	14.215x14.216	14.246x14.247	14.277x14.278	14.308x14.309	14.339x14.340	14.370x14.371	14.401x14.402	14.432x14.433	14.463x14.464	14.494x14.495	14.525x14.526	14.556x14.557	14.587x14.588	14.618x14.619	14.649x14.650	14.680x14.681	14.711x14.712	14.742x14.743	14.773x14.774	14.804x14.805	14.835x14.836	14.866x14.867	14.897x14.898	14.928x14.929	14.959x14.960	14.990x14.991	15.021x15.022	15.052x15.053	15.083x15.084	15.114x15.115	15.145x15.146	15.176x15.177	15.207x15.208	15.238x15.239	15.269x15.270	15.300x15.301	15.331x15.332	15.362x15.363	15.393x15.394	15.424x15.425	15.455x15.456	15.486x15.487	15.517x15.518	15.548x15.549	15.579x15.580	15.610x15.611	15.641x15.642	15.672x15.673	15.703x15.704	15.734x15.735	15.765x15.766	15.796x15.797	15.827x15.828	15.858x15.859	15.889x15.890	15.920x15.921	15.951x15.952	15.982x15.983	16.013x16.014	16.044x16.045	16.075x16.076	16.106x16.107	16.137x16.138	16.168x16.169	16.199x16.200	16.230x16.231	16.261x16.262	16.292x16.293	16.323x16.324	16.354x16.355	16.385x16.386	16.416x16.417	16.447x16.448	16.478x16.479	16.509x16.510	16.540x16.541	16.571x16.572	16.602x16.603	16.633x16.634	16.664x16.665	16.695x16.696	16.726x16.727	16.757x16.758	16.788x16.789	16.819x16.820	16.850x16.851	16.881x16.882	16.912x16.913	16.943x16.944	16.974x16.975	17.005x17.006	17.036x17.037	17.067x17.068	17.098x17.099	17.129x17.130	17.160x17.161	17.191x17.192	17.222x17.223	17.253x17.254	17.284x17.285	17.315x17.316	17.346x17.347	17.377x17.378	17.408x17.409	17.439x17.440	17.470x17.471	17.501x17.502	17.532x17.533	17.563x17.564	17.594x17.595	17.625x17.626	17.656x17.657	17.687x17.688	17.718x17.719	17.749x17.750	17.780x17.781	17.811x17.812	17.842x17.843	17.873x17.874	17.904x17.905	17.935x17.936	17.966x17.967	17.997x17.998	18.028x18.029	18.059x18.060	18.090x18.091	18.121x18.122	18.152x18.153	18.183x18.184	18.214x18.215	18.245x18.246	18.276x18.277	18.307x18.308	18.338x18.339	18.369x18.370	18.400x18.401	18.431x18.432	18.462x18.463	18.493x18.494	18.524x18.525	18.555x18.556	18.586x18.587	18.617x18.618	18.648x18.649	18.679x18.680	18.710x18.711	18.741x18.742	18.772x18.773	18.803x18.804	18.834x18.835	18.865x18.866	18.896x18.897	18.927x18.928	18.958x18.959	18.989x18.990	19.020x19.021	19.051x19.052	19.082x19.083	19.113x19.114	19.144x19.145	19.175x19.176	19.206x19.207	19.237x19.238	19.268x19.269	19.299x19.300	19.330x19.331	19.361x19.362	19.392x19.393	19.423x19.424	19.454x19.455	19.485x19.486	19.516x19.517	19.547x19.548	19.578x19.579	19.609x19.610	19.640x19.641	19.671x19.672	19.702x19.703	19.733x19.734	19.764x19.765	19.795x19.796	19.826x19.827	19.857x19.858	19.888x19.889	19.919x19.920	19.950x19.951	19.981x19.982	20.012x20.013	20.043x20.044	20.074x20.075	20.105x20.106	20.136x20.137	20.167x20.168	20.198x20.199	20.229x20.230	20.260x20.261	20.291x20.292	20.322x20.323	20.353x20.354	20.384x20.385	20.415x20.416	20.446x20.447	20.477x20.478	20.508x20.509	20.539x20.540	20.570x20.571	20.601x20.602	20.632x20.633	20.663x20.664	20.694x20.695	20.725x20.726	20.756x20.757	20.787x20.788	20.818x20.819	20.849x20.850	20.880x20.881	20.911x20.912	20.942x20.943	20.973x20.974	21.004x21.005	21.035x21.036	21.066x21.067	21.097x21.098	21.128x21.129	21.159x21.160	21.190x21.191	21.221x21.222	21.252x21.253	21.283x21.284	21.314x21.315	21.345x21.346	21.376x21.377	21.407x21.408	21.438x21.439

NOVEMBER, 1941

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Nat—National Battery Co.
Neg—Negative
Pak—Packed
Pac—Pacified Electric Company
Pb—Pb
Pb—Pb
R—Right side, under hood
TC—Top center
TD—Timing disc
UF—Under front seat
VD—Vibration damper
W-A—Willard & Auto-Life
WL—Willard Storage Battery Co.
WT—Wyle & Towne Mfg. Co.
UH—Under hood

Connecting Rod and Crankshaft Bearings

CONNECTING ROD BEARINGS										CRANKSHAFT MAIN BEARINGS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Line Number	PASSENGER CAR MAKE AND MODEL	Crankpin Journal	Lower Bearing					Diameter and Length							Line Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
			Diameter and Length	Material	Average Clearance (In.)	Average End Play (In.)	Type of Shim	Type of Bearing	Rods and Pins Removed from	Vibration Damper	Counterweights	End Thrust taken by	Amount of End Play (In.)	Type		Material	Clearance (In.)	Type of Shim	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
1	Buick-Special	2x1 1/2	Bab	.0013	.0075	So	Spun	A	Yes	8	C	.006	SI	Du	.0016	So	2.683x2.684	2.714x2.717	2.745x2.746	2.776x2.777	2.807x2.808	2.838x2.839	2.869x2.870	2.900x2.901	2.931x2.932	2.962x2.963	2.993x2.994	3.024x3.025	3.055x3.056	3.086x3.087	3.117x3.118	3.148x3.149	3.179x3.180	3.210x3.211	3.241x3.242	3.272x3.273	3.303x3.304	3.334x3.335	3.365x3.366	3.396x3.397	3.427x3.428	3.458x3.459	3.489x3.490	3.520x3.521	3.551x3.552	3.582x3.583	3.613x3.614	3.644x3.645	3.675x3.676	3.706x3.707	3.737x3.738	3.768x3.769	3.799x3.800	3.830x3.831	3.861x3.862	3.892x3.893	3.923x3.924	3.954x3.955	3.985x3.986	4.016x4.017	4.047x4.048	4.078x4.079	4.109x4.110	4.140x4.141	4.171x4.172	4.202x4.203	4.233x4.234	4.264x4.265	4.295x4.296	4.326x4.327	4.357x4.358	4.388x4.389	4.419x4.420	4.450x4.451	4.481x4.482	4.512x4.513	4.543x4.544	4.574x4.575	4.605x4.606	4.636x4.637	4.667x4.668	4.698x4.699	4.729x4.730	4.760x4.761	4.791x4.792	4.822x4.823	4.853x4.854	4.884x4.885	4.915x4.916	4.946x4.947	4.977x4.978	5.008x5.009	5.039x5.040	5.070x5.071	5.101x5.102	5.132x5.133	5.163x5.164	5.194x5.195	5.225x5.226	5.256x5.257	5.287x5.288	5.318x5.319	5.349x5.350	5.380x5.381	5.411x5.412	5.442x5.443	5.473x5.474	5.504x5.505	5.535x5.536	5.566x5.567	5.597x5.598	5.628x5.629	5.659x5.660	5.690x5.691	5.721x5.722	5.752x5.753	5.783x5.784	5.814x5.815	5.845x5.846	5.876x5.877	5.907x5.908	5.938x5.939	5.969x5.970	5.999x5.999	6.030x6.030	6.061x6.061	6.092x6.092	6.123x6.123	6.154x6.154	6.185x6.185	6.216x6.216	6.247x6.247	6.278x6.278	6.309x6.309	6.340x6.340	6.371x6.371	6.402x6.402	6.433x6.433	6.464x6.464	6.495x6.495	6.526x6.526	6.557x6.557	6.588x6.588	6.619x6.619	6.650x6.650	6.681x6.681	6.712x6.712	6.743x6.743	6.774x6.774	6.805x6.805	6.836x6.836	6.867x6.867	6.898x6.898	6.929x6.929	6.960x6.960	6.991x6.991	7.022x7.022	7.053x7.053	7.084x7.084	7.115x7.115	7.146x7.146	7.177x7.177	7.208x7.208	7.239x7.239	7.270x7.270	7.301x7.301	7.332x7.332	7.363x7.363	7.394x7.394	7.425x7.425	7.456x7.456	7.487x7.487	7.518x7.518	7.549x7.549	7.580x7.580	7.611x7.611	7.642x7.642	7.673x7.673	7.704x7.704	7.735x7.735	7.766x7.766	7.797x7.797	7.828x7.828	7.859x7.859	7.890x7.890	7.921x7.921	7.952x7.952	7.983x7.983	8.014x8.014	8.045x8.045	8.076x8.076	8.107x8.107	8.138x8.138	8.169x8.169	8.200x8.200	8.231x8.231	8.262x8.262	8.293x8.293	8.324x8.324	8.355x8.355	8.386x8.386	8.417x8.417	8.448x8.448	8.479x8.479	8.510x8.510	8.541x8.541	8.572x8.572	8.603x8.603	8.634x8.634	8.665x8.665	8.696x8.696	8.727x8.727	8.758x8.758	8.789x8.789	8.820x8.820	8.851x8.851	8.882x8.882	8.913x8.913	8.944x8.944	8.975x8.975	9.006x9.006	9.037x9.037	9.068x9.068	9.099x9.099	9.130x9.130	9.161x9.161	9.192x9.192	9.223x9.223	9.254x9.254	9.285x9.285	9.316x9.316	9.347x9.347	9.378x9.378	9.409x9.409	9.440x9.440	9.471x9.471	9.502x9.502	9.533x9.533	9.564x9.564	9.595x9.595	9.626x9.626	9.657x9.657	9.688x9.688	9.719x9.719	9.750x9.750	9.781x9.781	9.812x9.812	9.843x9.843	9.874x9.874	9.905x9.905	9.936x9.936	9.967x9.967	9.998x9.998	10.029x10.029	10.060x10.060	10.091x10.091	10.122x10.122	10.153x10.153	10.184x10.184	10.215x10.215	10.246x10.246	10.277x10.277	10.308x10.308	10.339x10.339	10.370x10.370	10.401x10.401	10.432x10.432	10.463x10.463	10.494x10.494	10.525x10.525	10.556x10.556	10.587x10.587	10.618x10.618	10.649x10.649	10.680x10.680	10.711x10.711	10.742x10.742	10.773x10.773	10.804x10.804	10.835x10.835	10.866x10.866	10.897x10.897	10.928x10.928	10.959x10.959	10.990x10.990	11.021x11.021	11.052x11.052	11.083x11.083	11.114x11.114	11.145x11.145	11.176x11.176	11.207x11.207	11.238x11.238	11.269x11.269	11.300x11.300	11.331x11.331	11.362x11.362	11.393x11.393	11.424x11.424	11.455x11.455	11.486x11.486	11.517x11.517	11.548x11.548	11.579x11.579	11.610x11.610	11.641x11.641	11.672x11.672	11.703x11.703	11.734x11.734	11.765x11.765	11.796x11.796	11.827x11.827	11.858x11.858	11.889x11.889	11.920x11.920	11.951x11.951	11.982x11.982	12.013x12.013	12.044x12.044	12.075x12.075	12.106x12.106	12.137x12.137	12.168x12.168	12.199x12.199	12.230x12.230	12.261x12.261	12.292x12.292	12.323x12.323	12.354x12.354	12.385x12.385	12.416x12.416	12.447x12.447	12.478x12.478	12.509x12.509	12.540x12.540	12.571x12.571	12.602x12.602	12.633x12.633	12.664x12.664	12.695x12.695	12.726x12.726	12.757x12.757	12.788x12.788	12.819x12.819	12.850x12.850	12.881x12.881	12.912x12.912	12.943x12.943	12.974x12.974	13.005x13.005	13.036x13.036	13.067x13.067	13.098x13.098	13.129x13.129	13.160x13.160	13.191x13.191	13.222x13.222	13.253x13.253	13.284x13.284	13.315x13.315	13.346x13.346	13.377x13.377	13.408x13.408	13.439x13.439	13.470x13.470	13.501x13.501	13.532x13.532	13.563x13.563	13.594x13.594	13.625x13.625	13.656x13.656	13.687x13.687	13.718x13.718	13.749x13.749	13.780x13.780	13.811x13.811	13.842x13.842	13.873x13.873	13.904x13.904	13.935x13.935	13.966x13.966	13.997x13.997	14.028x14.028	14.059x14.059	14.090x14.090	14.121x14.121	14.152x14.152	14.183x14.183	14.214x14.214	14.245x14.245	14.276x14.276	14.307x14.307	14.338x14.338	14.369x14.369	14.400x14.400	14.431x14.431	14.462x14.462	14.493x14.493	14.524x14.524	14.555x14.555	14.586x14.586	14.617x14.617	14.648x14.648	14.679x14.679	14.710x14.710	14.741x14.741	14.772x14.772	14.803x14.803	14.834x14.834	14.865x14.865	14.896x14.896	14.927x14.927	14.958x14.958	14.989x14.989	15.020x15.020	15.051x15.051	15.082x15.082	15.113x15.113	15.144x15.144	15.175x15.175	15.206x15.206	15.237x15.237	15.268x15.268	15.299x15.299	15.330x15.330	15.361x15.361	15.392x15.392	15.423x15.423	15.454x15.454	15.485x15.485	15.516x15.516	15.547x15.547	15.578x15.578	15.609x15.609	15.640x15.640	15.671x15.671	15.702x15.702	15.733x15.733	15.764x15.764	15.795x15.795	15.826x15.826	15.857x15.857	15.888x15.888	15.919x15.919	15.950x15.950	15.981x15.981	16.012x16.012	16.043x16.043	16.074x16.074	16.105x16.105	16.136x16.136	16.167x16.167	16.198x16.198	16.229x16.229	16.260x16.260	16.291x16.291	16.322x16.322	16.353x16.353	16.384x16.384	16.415x16.415	16.446x16.446	16.477x16.477	16.508x16.508	16.539x16.539	16.570x16.570	16.601x16.601	16.632x16.632	16.663x16.663	16.694x16.694	16.725x16.725	16.756x16.756	16.787x16.787	16.818x16.818	16.849x16.849	16.880x16.880	16.911x16.911	16.942x16.942	16.973x16.973	17.004x17.004	17.035x17.035	17.066x17.066	17.097x17.097	17.128x17.128	17.159x17.159	17.190x17.190	17.221x17.221	17.252x17.252	17.283x17.283	17.314x17.314	17.345x17.345	17.376x17.376	17.407x17.407	17.438x17.438	17.469x17.469	17.500x17.500	17.531x17.531	17.562x17.562	17.593x17.593	17.624x17.624	17.655x17.655	17.686x17.686	17.717x17.717	17.748x17.748	17.779x17.779	17.810x17.810	17.841x17.841	17.872x17.872	17.903x17.903	17.934x17.934	17.965x17.965	17.996x17.996	18.027x18.027	18.058x18.058	18.089x18.089	18.120x18.120	18.151x18.151	18.182x18.182	18.213x18.213	18.244x18.244	18.275x18.275	18.306x18.306	18.337x18.337	18.368x18.368	18.399x18.399	18.430x18.430	18.461x18.461	18.492x18.492	18.523x18.523	18.554x18.554	18.585x18.585	18.616x18.616	18.647x18.647	18.678x18.678	18.709x18.709	18.740x18.740	18.771x18.771	18.802x18.802	18.833x18.833	18.864x18.864	18.895x18.895	18.926x18.926	18.957x18.957	18.988x18.988	19.019x19.019	19.050x19.050	19.081x19.081	19.112x19.112	19.143x19.143	19.174x19.174	19.205x19.205	19.236x19.236	19.267x19.267	19.298x19.298	19.329x19.329	19.360x19.360	19.391x19.391	19.422x19.422	19.453x19.453	19.484x19.484	19.515x19.515	19.546x19.546	19.577x19.577	19.608x19.608	19.639x19.639	19.670x19.670	19.701x19.701	19.732x19.732	19.763x19.763	19.794x19.794	19.825x19.825	19.856x19.856	19.887x19.887	19.918x19.918	19.949x19.949	19.980x19.980	20.011x20.011	20.042x20.042	20.073x20.073	20.104x20.104	20.135x20.135	20.166x20.166	20.197x20.197	20.228x20.228	20.259x20.259	20.290x20.290	20.321x20.321	20.352x20.352	20.383x20.383	20.414x20.414	20.445x20.445	20.476x20.476	20.507x20.507	20.538x20.538	20.569x20.569	20.600x20.600	20.631x20.631	20.662x20.662	20.693x20.693	20.724x20.724	20.755x20.755	20.786x20.786	20.817x20.817	20.848x20.848	20.879x20.8

Ignition System and Battery

Line Number	PASSENGER CAR MAKE AND MODEL	Make	IGNITION UNIT					TIMING		COIL		SPARK PLUGS			BATTERY				Location					
			Model	Max. Centrifugal Advance (Deg.) at R.P.M.	Inches Mercury for start of Vacuum Advance (± 1 in.)	Max. Vacuum Advance (Deg.) at Inches of Mercury	POINTS		Firing Order	Amperage Draw		Ignition Lock Make	Make	Model	Thread Size	Gap (in.)	Ignition Cable Make	Make		Capacity—Amp. Hrs. at 20 hr. Rate	Plater per Cell	Bench Charging Rate		Terminal Grounded
							Arm Tension (Oz.)	Cam Angle (Deg.)		Spark Occurs Deg.—TDC	Marks On											Engine Stopped	Engine Idling	
1	Buick Special	DR	1110801	26-3000	6.00	12@13	.015	19-23	31	4BT	Fly	1,6,2,5,8,3,7,4	14	.025	Pak	DR	100	15	7.0	7.0	Neg	UH		
2	Buick Ext. Spec.	DR	1110801	26-3000	6.00	12@13	.015	19-23	31	4BT	Fly	1,6,2,5,8,3,7,4	14	.025	Pak	DR	100	15	7.0	7.0	Neg	UH		
3	Buick Super	DR	1110801	26-3000	6.00	12@13	.015	19-23	31	4BT	Fly	1,6,2,5,8,3,7,4	14	.025	Pak	DR	100	15	7.0	7.0	Neg	UH		
4	Buick Century	DR	1110801	26-3000	6.00	12@13	.015	19-23	31	4BT	Fly	1,6,2,5,8,3,7,4	14	.025	Pak	DR	100	15	7.0	7.0	Neg	UH		
5	Buick Roadmaster	DR	1110801	26-3000	6.00	12@13	.015	19-23	31	4BT	Fly	1,6,2,5,8,3,7,4	14	.025	Pak	DR	120	17	7.0	7.0	Neg	UH		
6	Buick Limited	DR	1110801	26-3000	6.00	12@13	.015	19-23	31	4BT	Fly	1,6,2,5,8,3,7,4	14	.025	Pak	DR	120	17	7.0	7.0	Neg	UH		
7	Cadillac	DR	1110807	24-4000	6.00	18@18	.015	19-23	31	5BT	TD	1,8,7,3,6,5,4,2	10	.030	Pak	DR	115	17	10.0	8.0	Pos	RF		
8	Cadillac	DR	1110807	24-4000	6.00	18@18	.015	19-23	31	5BT	TD	1,8,7,3,6,5,4,2	10	.030	Pak	DR	115	17	10.0	8.0	Pos	RF		
9	Chevrolet	DR	1110809	39-5-3450	7.00	20@20	.018	17-21	38	5BT	Fly	1,5,3,6,2,4	10	.040	DR	DR	100	15	7.0	7.0	Neg	RF		
10	Chrysler-Roy & Win.	DR	1110809	24-3060	5.00	16@15	.020	17-20	38	2AT	Fly	1,5,3,6,2,4	14	.025	DR	DR	100	15	7.0	7.0	Neg	RF		
11	Chrysler-Six & N.Y.	AL	IGS-4201B-1	24-3500	5.00	20@16	.017	17-20	27	TC	VD	1,6,2,5,8,3,7,4	14	.025	AL	AL	135	19	10.0	8.0	Pos	LF		
12	Chrysler-Crown Imp.	AL	IGT-4201B-1	24-3500	5.00	20@16	.017	17-20	27	TC	VD	1,6,2,5,8,3,7,4	14	.025	AL	AL	135	19	10.0	8.0	Pos	LF		
13	Crosley	'42 AL	IGW-4142	28-2600	5.00	16@16	.020	17-20	46	TC	Fly	1,2	14	.030	AL	AL	80	13	10.0	8.0	Pos	RF		
14	De Soto-Del. & Cust.	S-10 AL	IGS-4202C-1	22-2800	5.00	16@16	.020	17-20	38	4AT	VD	1,5,3,6,2,4	14	.025	AL	AL	105	15	10.0	8.0	Pos	LF		
15	Dodge-Del. & Cust.	D-22 AL	IGS-4203B-1	20-2300	5.00	17@16	.020	17-20	38	2AT	VD	1,5,3,6,2,4	14	.025	AL	AL	105	15	10.0	8.0	Pos	LF		
16	Ford-Six	Own	IGW-4203A	20-3000	6.75	15@10	.015	20-24	35	4BT	DH	1,5,4,6,6,3,7,2	14	.025	Ex	Own	120	17	10.0	8.0	Pos	UH		
17	Ford-Eight	Own	IGW-4203A	23.5-3140	6.75	15@10	.020	17-20	35	(b)	Fly	1,5,3,6,2,4	14	.038	Ex	Own	120	17	10.0	8.0	Pos	UH		
18	Hudson-Six & Del.	20 AL	IGW-4203A	23.5-3140	6.75	15@10	.020	17-20	35	TC	Fly	1,5,3,6,2,4	14	.038	Ex	Nat	96	17	10.0	8.0	Pos	LF		
19	Hudson-Super, & Com. 6	21, 22 AL	IGW-4203A	35-3400	6.75	15@10	.017	17-20	27	TC	Fly	1,6,2,5,8,3,7,4	14	.038	Ex	Nat	96	17	10.0	8.0	Pos	LF		
20	Hudson-Com. 8	24, 25 AL	IGP-4008A	35-3400	6.75	15@10	.017	17-20	27	TC	Fly	1,6,2,5,8,3,7,4	14	.038	Ex	Nat	108	19	10.0	8.0	Pos	LF		
21	Hudson-Com. Cust. 8	27 AL	IGP-4008A	35-3400	6.75	15@10	.017	17-20	27	TC	Fly	1,6,2,5,8,3,7,4	14	.038	Ex	Nat	108	19	10.0	8.0	Pos	LF		
22	Lincoln-Zeuth. & Cont.	Own	IGW-4203A	20-3000	6.75	15@10	.015	20-24	35	4BT	DH	1,4,9,3,5,2,11,10,3,6,7,12	14	.025	CH	CH	120	17	10.0	8.0	Pos	UH		
23	Mercury	Own	IGS-42015	20-2400	5.00	17@17	.015	20-24	35	4BT	DH	1,4,9,3,5,2,11,10,3,6,7,12	14	.025	CH	CH	120	17	10.0	8.0	Pos	UH		
24	Nash-Ambassador 600	42-40 DR	IGS-42015	18-1800	5.00	12@15	.021	17-21	35	TC	VD	1,5,3,6,2,4	14	.025	CH	CH	120	17	10.0	8.0	Pos	UH		
25	Nash-Ambassador 8	42-60 AL	IGT-42012	25-3600	14.00	12@17	.017	17-20	38	4BT	VD	1,5,3,6,2,4	14	.025	CH	CH	120	17	10.0	8.0	Pos	UH		
26	Nash-Ambassador 8	42-60 AL	IGT-42012	25-3600	14.00	12@17	.017	17-20	38	4BT	VD	1,5,3,6,2,4	14	.025	CH	CH	120	17	10.0	8.0	Pos	UH		
27	Nash-Ambassador 8	42-60 AL	IGT-42012	25-3600	14.00	12@17	.017	17-20	38	4BT	VD	1,5,3,6,2,4	14	.025	CH	CH	120	17	10.0	8.0	Pos	UH		
28	Oldsmobile-Special Six	68 DR	1110213	24-3200	6.00	12@17	.021	17-21	31	TC	Fly	1,5,3,6,2,4	14	.040	Pak	DR	100	15	12.5	4.5	Neg	UH		
29	Oldsmobile-Dynalux Six	78 DR	1110213	24-3200	6.00	12@17	.021	17-21	31	TC	Fly	1,5,3,6,2,4	14	.040	Pak	DR	100	15	12.5	4.5	Neg	UH		
30	Oldsmobile-Special 8	68 DR	1110213	24-3200	6.00	12@17	.021	17-21	31	2BT	Fly	1,6,2,5,8,3,7,4	14	.030	Pak	DR	100	15	12.5	4.5	Neg	UH		
31	Oldsmobile-Dynalux 8	68 DR	1110688	24-3200	6.00	12@17	.015	19-23	31	2BT	Fly	1,6,2,5,8,3,7,4	14	.030	Pak	DR	100	15	12.5	4.5	Neg	UH		
32	Oldsmobile-Custom 8	98 DR	1110688	24-3200	6.00	12@17	.015	19-23	31	4BT	Fly	1,6,2,5,8,3,7,4	14	.030	Pak	DR	120	17	12.5	4.5	Neg	UH		
33	Packard Eight	(A)	IGP-4502A	21-5-3100	6.00	12@17	.015	17-20	27	4BT	Fly	1,6,2,5,8,3,7,4	10	.028	W-A	W-A	114	17	10.0	8.0	Pos	UH		
34	Packard Six	2001-2021	IGT-4203	21-5-3100	6.00	12@17	.015	17-20	27	4BT	Fly	1,6,2,5,8,3,7,4	10	.028	W-A	W-A	114	17	10.0	8.0	Pos	UH		
35	Packard Super 8	2003-23-4-5	IGT-4203	23-3600	7.00	11@16	.015	17-20	27	4BT	VD	1,6,2,5,8,3,7,4	10	.028	AL	AL	114	17	10.0	8.0	Pos	UH		
36	Packard-Cup. Sup. 8	2006-7-8	IGT-4203	23-3600	7.00	11@16	.015	17-20	27	4BT	VD	1,6,2,5,8,3,7,4	10	.028	AL	AL	114	17	10.0	8.0	Pos	UH		
37	Plymouth-Del. & Spec. DL	P-14	IGS-4203C-1	20-2400	5.00	15@15	.020	17-21	38	3BT	VD	1,5,3,6,2,4	14	.025	AL	AL	95	15	7.0	7.0	Pos	LF		
38	Pontiac-Deluxe 6	42-25 DR	647-D	28-F-4000	8.0	15@16	.021	17-21	35	4BT	Fly	1,5,3,6,2,4	14	.025	Pak	DR	100	15	7.0	7.0	Neg	UH		
39	Pontiac-Deluxe 8	42-26 DR	647-D	28-F-4000	8.0	15@16	.021	17-21	35	4BT	Fly	1,5,3,6,2,4	14	.025	Pak	DR	100	15	7.0	7.0	Neg	UH		
40	Pontiac-Deluxe 8	42-27 DR	1110804	28-4200	8.0	20@17	.015	19-23	31	4BT	Fly	1,6,2,5,8,3,7,4	14	.025	Pak	DR	100	15	7.0	7.0	Neg	UH		
41	Pontiac-Stream. 8	42-28 DR	1110804	28-4200	8.0	20@17	.015	19-23	31	4BT	Fly	1,6,2,5,8,3,7,4	14	.025	Pak	DR	100	15	7.0	7.0	Neg	UH		
42	Studebaker Champion 6	4G AL	IGC-4801	14-2800	4.00	18@15	.020	17-20	35	2BT	Fly	1,5,3,6,2,4	14	.015	AW	AW	90	13	5.7	5.75	Pos	UH		
43	Studebaker-Commander 6	12A AL	IGC-4802	20-2900	3.00	12@12	.020	17-20	35	2BT	Fly	1,5,3,6,2,4	14	.025	AW	AW	95	15	5.75	5.75	Pos	LF		
44	Studebaker-President 8	8C AL	IGH-4101	27-3600	3.50	12@12	.020	17-20	34	TC	Fly	1,6,2,5,8,3,7,4	14	.025	AW	AW	95	15	5.75	5.75	Pos	LF		
45	Willis-Arctic	442 AL	IGW-4129	19-3000	3.50	20@15	.020	17-20	41	TC	Fly	1,3,4,2,*	14	.030	AL	AL	80	13	7.0	7.0	Neg	RF		

Fuel and Cooling Systems

46

PASSENGER CAR MAKE AND MODEL			FUEL SYSTEMS				COOLING SYSTEM										FAN BELT		Line Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
			FEED	MAKE	MAKE	CARBURETOR	Manifold Heat Control	Automatic Choke—Make	Air Cleaner—Make	Muffler—Make	WATER PUMP	Thermostat—Make	Pressure Relief Valve	RADIATOR CORE	System Capacity (Qts.)	Full Length Water Jacket				LOWER HOSE	UPPER HOSE	Length	Angle of Vee (Deg.)	Length—Outside (In.)	Width—Max. (In.)	Fan Make																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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	Buick-Special	Buick-Ex. Spec.	Buick-Super	Buick-Century	Buick-Roadmaster	Buick-Limited	Cadillac	Cadillac	Chrysler	Chrysler-Roy. & Win.	Chrysler-Sar. & N.Y.	Chrysler-Crown Imp.	Crosley	De Soto-DeL. & Cust.	Dodge-DeL. & Cust.	Ford-Six	Ford-Eight	Hudson-Six & Del.	Hudson-Super & Com. 6	Hudson-Super 8	Hudson-Com. 8	Hudson-Com. Cust. 8	Lincoln-Zeph. & Cont.	Lincoln-Custom	Mercury	Nash-Ambassador 600	Nash-Ambassador 8	Oldsmobile-Special Six	Oldsmobile-Dynamic Six	Oldsmobile-Symantic 8	Oldsmobile-Symantic 8	Oldsmobile-Custom 8	Packard-Six	Packard-Eight	Packard-Six	Packard-Cus. Sup. 8	Plymouth-DeL. & Spec. DL	Pontiac-Stream. 6	Pontiac-Stream. 6	Pontiac-Stream. 6	Pontiac-Stream. 6	Studebaker-Champion 6	Studebaker-Commander 6	Studebaker-President 8	Willis-American																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	42-40A	42-40B	42-50	42-50	42-70	42-90	61, 62, 63, 60S	67, 75	16	C-34	C-36	C-37	42	S-10	D-22	17	17	20	21, 22	24	25	26	27	19 1/2	19 1/2	17	42-40	42-60	42-80	66	76	68	78	98	2000-2021	2001-2021	2003-23-4-5	P-14	42-25	42-26	42-27	42-28	4G	12A	8C	442																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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ABBREVIATIONS:

- *—Venturi size
- †—Inside length
- (a)—Stromberg AAV-16;
- (b)—Front—Stromberg AAV-16; Rear—Stromberg AA-1;
- (c)—Front—Stromberg AAV-16; Rear—Stromberg AA-1;
- (d)—R.H. 13% L.H. 12% in. integral with fly wheel
- (e)—Air cooled by means of blower in
- (f)—Model 24—no. Model 25—yes
- (g)—17 gal.—2001; 20 gal.—2002
- (h)—Tubular—2000; Cellular—2020

- Car—Carter Carburetor Co.
- Cel—Cellular
- CP—Centrifugal
- CV—Caushaft pump
- DD—Dual down draft
- ET—Elbow type
- F-B—Fulton or Bishop & Babcock
- Fed—Feeders Mfg. Co.
- F-J—Feeders or Jamestown
- Ful—Fulton Syphon
- Har—Harrison Radiator Div.
- H-H—Hayes Industries
- H-M—Harrison or McCord
- H-S—Hayes or Schweitzer-Cummins
- Jam—Jamestown Metal Equipment Co.
- Man—Manual
- Mc—McCord Radiator Co.
- McK—MacKenzie Muffler Co.
- Mo—Molded
- N—No or None
- Old—Oldberg Mfg. Co.
- S-C—Stromberg or Carter
- Sch—Schweitzer-Cummins
- SD—Single down draft
- Sis—Sisson-Pierce Governor Co.
- Str—Stromberg Carburetor Div.
- TF—Tub and fin
- Til—Tillotson Mfg. Co.
- Var—Various
- Wal—Walker Mfg. Co.
- Wau—Waukesha Motor Co.
- Y—Yes

Generators and Clutches

Line Number	PASSENGER CAR MAKE AND MODEL	Make	Model	Type	Brush Spring Tension (oz.)	Charging Control	MAXIMUM CONTROLLING CHARGING RATE				CUTOFF RELAY			VOLTAGE REGULATOR			CURRENT REGULATOR			Ammeter—Make	CLUTCH				Line Number					
							Temperature (°F)	Amperes	Voltage	R.P.M.	Voltage at Closing	Amperes to Open—Reverse Current	Average Air Gap (In.)	Volts	Temperature (°F)	Average Air Gap (In.)	Amperes	Temperature (°F)	Average Air Gap (In.)		Car Speed for Maximum Charging Rate—M.P.H.	Make	Drive Type	Vibration Insulator		FACINGS				
																										Material	Inside Diam. (In.)	Outside Diam. (In.)	Thickness (In.)	No. Required
1	Buick-Special..... 42-40A	DR	1102679	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-4	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	25	AC	Own*	Dff	Wo	6	10	10	10	2	
2	Buick-Ex. Spec..... 42-40B	DR	1102679	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-4	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	24	AC	Own*	Dff	Wo	6	10	10	10	2	
3	Buick-Super..... 42-50	DR	1102679	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-4	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	24	AC	Own*	Dff	Wo	6	10	10	10	2	
4	Buick-Century..... 42-60	DR	1102668	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-4	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	26	AC	Own*	Dff	Wo	6	10	10	10	2	
5	Buick-Roadmaster..... 42-70	DR	1102668	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-4	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	25	AC	Own*	Dff	Wo	6	10	10	10	2	
6	Buick-Limited..... 61, 62, 63, 60S	DR	1102668	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-4	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	24	AC	Own*	Dff	Wo	6	10	10	10	2	
7	Cadillac..... 61, 62, 63, 60S	DR	1102683	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	27	AC	Long*	Dff	Wo	7	11	10	10	2	
8	Cadillac..... 67, 75	DR	1102693	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	27	AC	Long*	Dff	Wo	7	11	10	10	2	
9	Chvrolet..... C-34	DR	1102667	Shu	24-23	CV	Onr	34	8.0	2100	6.2-6.7	0-4	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	25	AC	Inl	Dff	Wo	8	9 1/2	10	9 1/2	2	
10	Chrysler-Roy. & Win..... C-34	DR	GDZ-4801A	Shu	Max. 53	CV	Onr	35	8.0	2100	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	25	AC	MW	Dff	Wo	7	10	10	10	2	
11	Chrysler-Sar. & N.Y..... C-36	DR	GDZ-4801A	Shu	Max. 53	CV	Onr	35	8.0	2100	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	25	AC	FC	Dff	Wo	6	10	10	10	2	
12	Chrysler-Crown Imp..... C-37	AL	GEG-4819C	Shu	Max. 53	CV	Onr	35	8.0	1800	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	39-41	H-C	.050	23	AC	FC	Dff	Wo	6	10	10	10	2	
13	Crosley..... 42	DR	GBM-4619-5	3BR	Max. 53	No	Hot	12	8.0	2400	6.5-7.2	5-2.5	.032	No	No	No	No	H-C	.050	28	AC	Mo	Dff	Wo	4	6	10	10	2	
14	De Soto-Del. & Cust..... S-10	DR	GDZ-4801A	Shu	Max. 53	CV	Onr	35	8.0	2300	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	25	AC	Rock	Dff	Wo	7	10	10	10	2	
15	Dodge-Del. & Cust..... D-22	DR	GDZ-4801S	Shu	Max. 53	CV	Onr	35	8.0	2300	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	25	AC	Rock	Dff	Wo	7	10	10	10	2	
16	Ford-Six..... 20	Own	01A-10000B	Shu	28	CV	Onr	32	6.0	3000	6.0-6.3	Max. 8	.032	6.8-7.2	Onr	.048	30-33	70	.048	35	Own	Long	Dff	Wo	5 1/2	9	10	10	2	
17	Ford-Eight..... 20	Own	01A-10000B	3BR	Max. 53	V	Onr	32	8.0	3200	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	No	No	No	IL	Own	Long	Dff	Wo	5 1/2	9	10	10	2	
18	Hudson-Six & Del..... 21, 22	AL	GEC-4801A	3BR	Max. 53	V	Onr	32	8.0	3200	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	No	No	No	IL	Own	Long	Dff	Wo	5 1/2	9	10	10	2	
19	Hudson-Super & Com. 6..... 24, 25	AL	GEC-4801A	3BR	Max. 53	V	Onr	32	8.0	3200	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	No	No	No	IL	Own	Long	Dff	Wo	5 1/2	9	10	10	2	
20	Hudson-Super & Com. 8..... 24, 27	AL	GEC-4801A	3BR	Max. 53	V	Onr	32	8.0	3200	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	No	No	No	IL	Own	Long	Dff	Wo	5 1/2	9	10	10	2	
21	Hudson-Com. Cust. 8..... 24, 27	AL	GDZ-4801A	3BR	Max. 53	V	Onr	32	8.0	3200	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	No	No	No	IL	Own	Long	Dff	Wo	5 1/2	9	10	10	2	
22	Lincoln-Zeph. & Cont..... 20	Own	01A-10000B	Shu	28	CV	Onr	32	6.0	3000	6.0-6.3	Max. 8	.032	6.8-7.2	Onr	.048	30-33	70	.048	35	Own	Long	Dff	Wo	5 1/2	9	10	10	2	
23	Lincoln-Custom..... 20	Own	01A-10000B	Shu	28	CV	Onr	32	6.0	3000	6.0-6.3	Max. 8	.032	6.8-7.2	Onr	.048	30-33	70	.048	35	Own	Long	Dff	Wo	5 1/2	9	10	10	2	
24	Mercury..... 42-40	Own	01A-10000B	Shu	28	CV	Onr	32	6.0	3000	6.0-6.3	Max. 8	.032	6.8-7.2	Onr	.048	30-33	70	.048	35	Own	Long	Dff	Wo	5 1/2	9	10	10	2	
25	Nash-Ambassador 600..... 42-40	DR	1102684	Shu	24-28	CV	Onr	32	8.0	2400	6.2-6.7	4-6	.030	7.2-7.5	Onr	.072	34-36	H-C	.082	35	Own	B&B	Dff	Wo	6 1/2	8	10	10	2	
26	Nash-Ambassador 6..... 42-60	AL	GDZ-4806A	Shu	Max. 53	CV	Onr	35	8.0	2400	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	35	Own	B&B	Dff	Wo	7	10	10	10	2	
27	Nash-Ambassador 8..... 42-60	AL	GDZ-4803B	Shu	Max. 53	CV	Onr	35	8.0	2400	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	35	Own	B&B	Dff	Wo	7	10	10	10	2	
28	Oldsmobile-Special Six..... 66	DR	1102664	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	24	AC	B&B*	Dff	Wo	6	9 1/2	10	9 1/2	2	
29	Oldsmobile-Dynasty Six..... 66	DR	1102664	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	24	AC	B&B*	Dff	Wo	6	9 1/2	10	9 1/2	2	
30	Oldsmobile-Special Six..... 66	DR	1102664	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	24	AC	B&B*	Dff	Wo	6	9 1/2	10	9 1/2	2	
31	Oldsmobile-Dynasty 8..... 78	DR	1102664	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	24	AC	B&B*	Dff	Wo	7	10	10	10	2	
32	Oldsmobile-Dynasty 8..... 78	DR	1102664	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	24	AC	B&B*	Dff	Wo	7	10	10	10	2	
33	Oldsmobile-Custom 8..... 98	DR	1102664	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.072	32-34	Onr	.082	24	AC	B&B*	Dff	Wo	7	10	10	10	2	
34	Packard-Six..... 2000-2021	AL(a)	GDZ-4801F	Shu	Max. 53	CV	Onr	35	8.0	2400	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	35	Own	Long	Dff	Wo	6	10	10	10	2	
35	Packard-Eight..... 2000-2021	AL	GDZ-4801F	Shu	Max. 53	CV	Onr	35	8.0	2400	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	35	Own	Long	Dff	Wo	6	10	10	10	2	
36	Packard-Six..... 2003-23-4-5	AL	GDZ-4801F	Shu	Max. 53	CV	Onr	35	8.0	2400	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	35	Own	Long	Dff	Wo	6	10	10	10	2	
37	Packard-Cus. Sup. 8..... 2006-7-8	AL	GEA-4802A-1	Shu	Max. 53	CV	Onr	35	8.0	2400	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	35	Own	Long	Dff	Wo	6 1/2	11	10	10	2	
38	Plymouth-Del. & Spec. DL P-14	DR	GDZ-4801B	Shu	Max. 53	CV	Onr	35	8.0	2300	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	25	AC	B&B	Dff	Wo	6	9 1/2	10	9 1/2	2	
39	Pontiac-Deluxe 6..... 42-25	DR	1102665	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.070	32-34	Onr	.082	35	AC	In-L	Dff	Wo	6	9 1/2	10	9 1/2	2	
40	Pontiac-Stream 6..... 42-26	DR	1102665	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.070	32-34	Onr	.082	35	AC	In-L	Dff	Wo	6	9 1/2	10	9 1/2	2	
41	Pontiac-Deluxe 8..... 42-27	DR	1102665	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.070	32-34	Onr	.082	35	AC	In-L	Dff	Wo	6	9 1/2	10	9 1/2	2	
42	Pontiac-Stream 8..... 42-28	DR	1102665	Shu	24-28	CV	Onr	34	8.0	2400	6.2-6.7	0-2	.020	7.2-7.4	Onr	.070	32-34	Onr	.082	35	AC	In-L	Dff	Wo	6	9 1/2	10	9 1/2	2	
43	Studebaker Champion 6..... 4G	AL	GDZ-4804A	Shu	Max. 53	CV	Onr	35	8.0	.....	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	18	SW	B&B	Dff	Wo	5	8	9 1/2	10	2
44	Studebaker-Commander 6..... 12A	AL	GDZ-4805A	Shu	Max. 53	CV	Onr	35	8.0	.....	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	20	SW	B&B	Dff	Wo	6	9 1/2	10	9 1/2	2
45	Studebaker-President 8..... 8C	AL	GDZ-4805A	Shu	Max. 53	CV	Onr	35	8.0	.....	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	20	SW	B&B	Dff	Wo	6	9 1/2	10	9 1/2	2
46	Willys-American..... 442	AL	GCI-4811-A	3BR	Max. 53	V	Onr	25	8.0	.....	6.4-6.6	4-6	.032	7.2-7.5	Onr	.050	34-36	H-C	.050	20	KS	Atw	Dff	Wo	5 1/2	7 1/2	10	9 1/2	2

ABBREVIATIONS:

- †—Through fluid flywheel with automatic transmissions at extra cost
- With Hydra-Matic Drive there is no clutch
- Long or Borg & Beck Disc
- (a)—Or Delco-Remy 1102682
- 3BR—Third Brush type

- AC—AC Spark Plug Co.
- AL—The Electric Auto-Lite Co.
- Atw—Atwood
- B&B—Borg & Beck Division
- Co—Cork
- CV—Current and voltage regulator
- Dff—Direct to flywheel face
- DR—Delco-Remy Division
- FC—Fluid coupling

- FD—Fluid drive
- H-C—Hot or cold
- IL—Indicating light
- Inl—Inland Manufacturing Division
- Inl-L—Inland with Long disc
- KS—King-Seely Corp.
- Long—Long Manufacturing Division
- Max—Maximum
- Mo—Molded asbestos

- MW—Molded on one face, woven on other face
- No—No or None
- Op—Operating temperature
- Rock—Rockford Drilling Machine Div.
- Shu—Shunt
- SW—Stewart-Warner Corp.
- V—Voltage regulator
- Wo—Woven asbestos

Starting Motor—Valve Timing

STARTING MOTOR										VALVE TAPPET CLEARANCE (Inches)				VALVE TIMING (Degrees)				Line Number				
Line Number	PASSENGER CAR MAKE AND MODEL	Make	Model	Cranking Speed	Brush Spring Tension (Oz.)	Lock Test			No Load Test	Type of Drive	Starting Device	Starting Operation	Timing		Hydraulic Valve Lifters	Timing Marks Located						
						Amperage Draw	Volts	Torque (Lb. Ft.)					Amperage Draw	Volts		Operating	Intake		Operating	Exhaust	Open	Closed	Open	Closed
1	Buick-Special	DR	1107049	90	24-28	525	3.37	12.0	65	5.0	5000	OC	Sol	Dap	F	N	13BT	69AB	55BB	22AT	FW	1
2	Buick-Ex. Spec.	DR	1107049	90	24-28	525	3.37	12.0	65	5.0	5000	OC	Sol	Dap	F	N	13BT	69AB	55BB	22AT	FW	2
3	Buick-Super	DR	1107049	90	24-28	525	3.37	12.0	65	5.0	5000	OC	Sol	Dap	F	N	13BT	69AB	55BB	22AT	FW	3
4	Buick-Century	DR	1107049	90	24-28	525	3.37	12.0	65	5.0	5000	OC	Sol	Dap	F	N	13BT	69AB	55BB	22AT	FW	4
5	Buick-Roadmaster	DR	1107049	90	24-28	525	3.37	12.0	65	5.0	5000	OC	Sol	Dap	F	N	13BT	69AB	55BB	22AT	FW	5
6	Buick-Limited	DR	1107049	90	24-28	525	3.37	12.0	65	5.0	5000	OC	Sol	Dap	F	N	13BT	69AB	55BB	22AT	FW	6
7	Cadillac	DR	1107049	90	24-28	525	3.37	12.0	65	5.0	5000	OC	Sol	Dap	F	N	13BT	69AB	55BB	22AT	FW	7
8	Cadillac	DR	1107049	90	24-28	525	3.37	12.0	65	5.0	5000	OC	Sol	Dap	F	N	13BT	69AB	55BB	22AT	FW	8
9	Chrysler	DR	1107054	65	24-28	525	3.37	12.0	65	5.0	5000	OC	Sol	Dsp	F	N	TC	42AB	52BB	10AT	FW	9
10	Chrysler-Roy. & Win.	AL	MAX-4050	100	42-53	500	3.50	14.0	70	5.5	5300	OC	Man	Dsp	F	N	3BT	35AB	46BB	5AT	FW	10
11	Chrysler-Sar. & N.Y.	AL	MAX-4050	100	42-53	500	3.50	14.0	70	5.5	5300	OC	Man	Dsp	F	N	3BT	35AB	46BB	5AT	FW	11
12	Chrysler-Crown Imp.	AL	MAX-4050	100	42-53	500	3.50	14.0	70	5.5	5300	OC	Man	Dsp	F	N	3BT	35AB	46BB	5AT	FW	12
13	Crosley	AL	MZ-4077	240	42-53	560	4.00	11.8	70	5.5	4300	Ben	Man	Dsp	F	N	6BT	50AB	48BB	12AT	VD	13
14	De Soto-DeL. & Cust.	AL	MAW-4026	100	42-53	505	3.00	11.5	65	5.5	4900	OC	Man	Dsp	F	N	6BT	50AB	48BB	12AT	VD	14
15	Dodge-DeL. & Cust.	AL	MAW-4026	100	42-53	505	3.00	11.5	65	5.5	4900	OC	Man	Dsp	F	N	6BT	50AB	48BB	12AT	VD	15
16	Ford-Six	Own	Own	100	32	500	3.50	14.0	70	5.5	4300	Ben	Sol	Pbd	R	N	10%BT	60AB	50BB	18%AT	FW	16
17	Ford-Eight	Own	Own	100	32	500	3.50	14.0	70	5.5	4300	Ben	Sol	Pbd	R	N	10%BT	60AB	50BB	18%AT	FW	17
18	Hudson-Six & Del.	AL	MZ-4092	100	42-53	420	3.00	7.8	70	5.5	4300	Ben	Sol	Pbd	R	N	TC	44AB	48BB	6AT	FW	18
19	Hudson-Super. & Com. 6	AL	MZ-4092	100	42-53	420	3.00	7.8	70	5.5	4300	Ben	Sol	Pbd	R	N	TC	44AB	48BB	6AT	FW	19
20	Hudson-Com. 8	AL	MAB-4100	100	42-53	582	3.00	15.8	60	5.5	3700	Ben	Sol	Pbd	R	N	10%BT	60AB	50BB	18%AT	FW	20
21	Hudson-Com. Cust. 8	AL	MAB-4100	100	42-53	582	3.00	15.8	60	5.5	3700	Ben	Sol	Pbd	R	N	10%BT	60AB	50BB	18%AT	FW	21
22	Lincoln-Zeph. & Cont.	Own	Own	100	32	500	3.50	14.0	70	5.5	4300	Ben	Sol	Pbd	R	N	10%BT	60AB	50BB	18%AT	FW	22
23	Lincoln-Custom	Own	Own	100	32	500	3.50	14.0	70	5.5	4300	Ben	Sol	Pbd	R	N	10%BT	60AB	50BB	18%AT	FW	23
24	Mercury	Own	Own	100	32	500	3.50	14.0	70	5.5	4300	Ben	Sol	Pbd	R	N	10%BT	60AB	50BB	18%AT	FW	24
25	Nash-Ambassador 600	DR	1109451	100	24-28	540	3.30	11.5	60	5.7	6000	Ben	Man	Dsp	R	N	10%BT	60AB	50BB	18%AT	FW	25
26	Nash-Ambassador 6	DR	1109451	100	24-28	540	3.30	11.5	60	5.7	6000	Ben	Man	Dsp	R	N	10%BT	60AB	50BB	18%AT	FW	26
27	Nash-Ambassador 8	AL	MAB-4104	100	42-53	582	3.00	15.8	60	5.5	3700	Ben	Man	Dsp	R	N	10%BT	60AB	50BB	18%AT	FW	27
28	Oldsmobile-Special Six	DR	1107034	100	24-28	525	3.37	12.0	65	5.0	5000	OC	Man	Dsp	F	N	5BT	45AB	48BB	5AT	FW	28
29	Oldsmobile-Dynamic Six	DR	1107034	100	24-28	525	3.37	12.0	65	5.0	5000	OC	Man	Dsp	F	N	5BT	45AB	48BB	5AT	FW	29
30	Oldsmobile-Dynamic 8	DR	1107922	100	24-28	600	3.00	15.0	60	5.0	6000	OC	Man	Dsp	F	N	TC	35AB	45BB	10AT	FW	30
31	Oldsmobile-Dynamic 8	DR	1107922	100	24-28	600	3.00	15.0	60	5.0	6000	OC	Man	Dsp	F	N	TC	35AB	45BB	10AT	FW	31
32	Oldsmobile-Custom 8	DR	1107930	100	24-28	600	3.00	15.0	60	5.0	6000	OC	Man	Dsp	F	N	TC	35AB	45BB	10AT	FW	32
33	Packard-Six	AL	MAW-4027	100	42-53	505	3.00	11.5	65	5.5	4900	Ben	Sol	Pbd	R	N	1BT	39AB	45BB	5AT	FW	33
34	Packard-Eight	AL	MAW-4027	100	42-53	505	3.00	11.5	65	5.5	4900	Ben	Sol	Pbd	R	N	1BT	39AB	45BB	5AT	FW	34
35	Packard-Sup. 8	AL	MAW-4052	100	42-53	652	3.00	33.5	77	5.5	2700	OC	Sol	Pbd	R	N	1BT	39AB	45BB	5AT	FW	35
36	Packard-Cus. Sup. 8	AL	MAW-4052	100	42-53	652	3.00	33.5	77	5.5	2700	OC	Sol	Pbd	R	N	1BT	39AB	45BB	5AT	FW	36
37	Plymouth-DeL. & Spec. DL.	AL	MZ-4105	100	42-53	420	3.00	7.8	70	5.5	4300	OC	Man	Dsp	F	N	12BT	44AB	50BB	6AT	FW	37
38	Pontiac-DeLuxe 6	DR	1107032	100	24-28	525	3.37	12.0	65	5.0	5000	OC	Man	Dsp	F	N	12BT	44AB	50BB	6AT	FW	38
39	Pontiac-Stream 6	DR	1107032	100	24-28	525	3.37	12.0	65	5.0	5000	OC	Man	Dsp	F	N	12BT	44AB	50BB	6AT	FW	39
40	Pontiac-DeLuxe 8	DR	1107921	100	24-28	600	3.00	16.0	60	5.0	6000	OC	Man	Dsp	F	N	12BT	44AB	50BB	6AT	FW	40
41	Pontiac-Stream 8	DR	1107921	100	24-28	600	3.00	16.0	60	5.0	6000	OC	Man	Dsp	F	N	12BT	44AB	50BB	6AT	FW	41
42	Studebaker Champion 6	AL	MZ-4090	130	42-53	420	3.00	7.8	70	5.5	4300	Ben	Man	Dsp	R	N	15BT	49AB	54BB	10AT	FW	42
43	Studebaker-Commander 6	AL	MAW-4020	130	42-53	505	3.00	11.5	65	5.5	4900	Ben	Man	Dsp	R	N	15BT	49AB	54BB	10AT	FW	43
44	Studebaker-President 8	AL	MAW-4051	110	42-53	640	3.00	16.5	65	5.5	5300	OC	Sol	Dsp	R	N	15BT	49AB	54BB	10AT	FW	44
45	Willys-American	AL	MZ-4109	185	42-53	420	3.00	7.8	70	5.5	4300	Ben	Man	Dsp	R	N	15BT	49AB	54BB	10AT	FW	45

ABBREVIATIONS:

AT—After top center

ABBREVIATIONS:

(a)—Auto-Life MAW-4027 or Delco-Remy 1107056 on model 2000 and Delco-Remy 1107077 on model 2020
 AB—After bottom center
 AL—Electric Auto-Life Co.

AT—After top center
 BB—Before bottom center
 Ben—Bendix, Eclipse Machine Div.
 BT—Before top center
 C—Cold
 Dap—Depress accelerator pedal
 Dep—Depress clutch pedal

DR—Distributor housing
 Dsp—Depress starter pedal
 F—Fly wheel
 HA—Hydraulic automatic adjustment
 Man—Manual
 N—No

OC—Overrunning clutch
 Pbd—Push button on dash board
 R—Rear
 Sol—Solenoid
 TC—Top center
 VD—Crankshaft vibration damper
 Y—Yes

Steering and Brakes

STEERING										FOOT BRAKE										HAND BRAKE									
Gear			Drag Link	No of Tie Rods	Intermediate Arm	Car Turning Radius— (Feet)	Caster (Deg.)	Camber (Deg.)	Toe-In (In.)	Kingpin Inclination (Deg.)	Make	Type	Type Lining		Drums	Lining			Clearance		Total Foot Braking Area (Sq. In.)	Per Cent Braking on Rear Wheels	Operates on	Internal or External	Lining			Line Number	
Type	Make	Ratio (to 1)											Primary Shoe	Secondary Shoe		Diameter	Length per Wheel (In.)	Width (In.)	Thickness (In.)	Toe					Heel	Drum Diameter	Length per Drum (In.)		Width (In.)	Thickness (In.)	Clearance (In.)
1	Buick-Special	BW	Sag	19.8	No	N	19.0	N 1/2 to +1 1/2	0 to 1 1/2	3 1/2 to 4 3/8	B-D	H	Wo	Mo	CI	12	22 1/2	1 1/4	.015	158.7	47.0	RS	Int	12	22 1/2	1 1/4	.015	1	
2	Buick-Ex. Spec.	BW	Sag	19.8	No	N	19.8	N 1/2 to +1 1/2	0 to 1 1/2	3 1/2 to 4 3/8	B-D	H	Wo	Mo	CI	12	22 1/2	1 1/4	.015	158.7	47.0	RS	Int	12	22 1/2	1 1/4	.015	2	
3	Buick-Super	BW	Sag	19.8	No	N	19.8	N 1/2 to +1 1/2	0 to 1 1/2	3 1/2 to 4 3/8	B-D	H	Wo	Mo	CI	12	22 1/2	1 1/4	.015	158.7	47.0	RS	Int	12	22 1/2	1 1/4	.015	3	
4	Buick-Century	BW	Sag	19.8	No	N	20.7	N 1/2 to +1 1/2	0 to 1 1/2	3 1/2 to 4 3/8	B-D	H	Wo	Mo	CI	12	22 1/2	1 1/4	.015	158.7	47.0	RS	Int	12	22 1/2	1 1/4	.015	4	
5	Buick-Roadmaster	BW	Sag	19.8	No	N	21.1	N 1/2 to +1 1/2	0 to 1 1/2	3 1/2 to 4 3/8	B-D	H	Wo	Mo	CI	14	26 1/2	2 1/4	.015	205.4	47.0	RS	Int	12	22 1/2	1 1/4	.015	5	
6	Buick-Limited	BW	Sag	23.6	No	N	22.7	N 1/2 to +1 1/2	0 to 1 1/2	3 1/2 to 4 3/8	B-D	H	Wo	Mo	CI	14	26 1/2	2 1/4	.015	214.6	47.0	RS	Int	14	23 1/2	2	.015	6	
7	Cadillac	BW	Sag	19.8	Cr	2	(a)	N 1 1/2 to N 2 1/2	1 1/2 to 3 1/2	5° 51'	Ben	H	Mo	Mo	Com	12	24 1/2	(c)	.010	207.0	44.2	RS	Int	12	24 1/2	(d)	.010	7	
8	Cadillac	BW	Sag	23.6	Cr	2	(b)	N 1 1/2 to N 2 1/2	1 1/2 to 3 1/2	5° 51'	Ben	H	Mo	Mo	Com	12	24 1/2	(c)	.010	207.0	44.2	RS	Int	12	24 1/2	(d)	.010	8	
9	Chvrolet	WR	Sag	17.5	No	N	20.0	N 1 1/2 to +1 1/2	0 to 1 1/2	3 1/2 to 6	Ovn	H	Wo	Mo	(e)	11	22 1/2	1 3/4	(f)	158.2	47.5	RS	Int	11	22 1/2	1 3/4	(f)	9	
10	Chrysler-Roy. & Win.	WR	Gem	13.2	No	2	20.0	N 1 to +1	0 to 1 1/2	4 3/8 to 6	Loc	H	Wo	Mo	Cen	12	19 1/2	2	(h)	155.5	40.0	PS	Ext	6	16 1/2	2 1/2	.017	10	
11	Chrysler-Sar. & N.Y.	WR	Gem	20.4	No	2	20.0	N 1 to +1	0 to 1 1/2	4 3/8 to 6	Loc	H	Wo	Mo	Cen	12	19 1/2	2	(h)	189.2	39.6	PS	Ext	7	20 1/2	2 1/2	.017	11	
12	Chrysler-Crown Imp.	WR	Gem	20.4	No	2	20.0	N 1 to +1	0 to 1 1/2	4 3/8 to 6	Loc	H	Wo	Mo	Cen	12	19 1/2	2	(h)	189.2	39.6	PS	Ext	7	20 1/2	2 1/2	.017	12	
13	Crosley	WR	Ross	17.0	Lg	1	34.0	6 1/2 to 11	2	6 1/2 to 8	H-W	H	Wo	Mo	St	6	18 1/2	2	(i)	150.4	50.0	PS	Ext	6	18 1/2	2	(i)	13	
14	De Soto-DeL. & Cust.	WR	Gem	18.2	No	2	20.0	N 1 to +1	0 to 1 1/2	4 3/8 to 6	Loc	H	Wo	Mo	CI	11	19 1/2	2	(j)	155.5	40.0	PS	Ext	6	16 1/2	2	.017	14	
15	Dodge-DeL. & Cust.	WR	Gem	18.2	No	2	20.0	N 1 to +1	0 to 1 1/2	4 3/8 to 6	Loc	H	Wo	Mo	CI	11	19 1/2	2	(j)	155.5	40.0	PS	Ext	6	16 1/2	2	.017	15	
16	Ford-Six	WR	Gem	18.2	Tra	1	21.0	1	1 1/2	8	Ovn	H	Wo	Mo	CS	12	23.4	1.74	.020	163.0	40.0	RS	Int	12	23.4	1.74	.02	16	
17	Ford-Eight	WR	Gem	18.2	Tra	1	21.0	1	1 1/2	8	Ovn	H	Wo	Mo	CS	12	23.4	1.74	.020	163.0	40.0	RS	Int	12	23.4	1.74	.02	17	
18	Hudson-Six & Del.	WR	Gem	18.2	Lg	2	20.8	1 1/2 to 3 1/4	1 1/2 to 3 1/4	3° 38'	Ben	D	Wo	Mo	St	10	19.8	1 3/8	.010	133.9	50.0	RS	Int	10	19.8	1 3/8	.010	18	
19	Hudson-Super. & Com. 6	WR	Gem	18.2	Lg	2	21.3	1 1/2 to 3 1/4	1 1/2 to 3 1/4	3° 38'	Ben	D	Wo	Mo	St	10	19.8	1 3/8	.010	138.9	50.0	RS	Int	10	19.8	1 3/8	.010	19	
20	Hudson-Super. & Com. 6	WR	Gem	18.4	Lg	2	21.3	1 1/2 to 3 1/4	1 1/2 to 3 1/4	3° 38'	Ben	D	Wo	Mo	St	11	21.6	1 3/8	.010	141.1	50.0	RS	Int	11	21.6	1 3/8	.010	20	
21	Hudson-Super. & Com. 6	WR	Gem	18.4	Lg	2	22.0	1 1/2 to 3 1/4	1 1/2 to 3 1/4	3° 38'	Ben	D	Wo	Mo	St	11	21.6	1 3/8	.010	141.1	50.0	RS	Int	11	21.6	1 3/8	.010	21	
22	Lincoln-Zenith & Cont.	WR	Gem	18.4	Tra	1	21.0	1 1/2 to 3 1/4	1 1/2 to 3 1/4	3 3/8 to 4 3/4	Ovn	H	Wo	Mo	CS	12	23.9	1.74	.021	168.0	...	RS	Int	12	23.9	1.74	.021	22	
23	Lincoln-Zenith & Cont.	WR	Gem	18.4	Tra	1	21.0	1 1/2 to 3 1/4	1 1/2 to 3 1/4	3 3/8 to 4 3/4	Ovn	H	Wo	Mo	CS	12	23.9	1.74	.021	168.0	...	RS	Int	12	23.9	1.74	.021	23	
24	Marcury	WR	Gem	18.4	Tra	1	21.0	1 1/2 to 3 1/4	1 1/2 to 3 1/4	3 3/8 to 4 3/4	Ovn	H	Wo	Mo	CS	12	23.9	1.74	.021	168.0	...	RS	Int	12	23.9	1.74	.021	24	
25	Nash-Ambassador 600	WR	Gem	18.2	Tra	2	19.0	0 to 1 1/2	0 to 1 1/2	5 1/2	Ben	H	Wo	Mo	CI	9	20.5	1 3/4	.010	143.5	40.0	RS	Int	9	20.5	1 3/4	.010	25	
26	Nash-Ambassador 600	WR	Gem	18.2	Tra	2	19.0	0 to 1 1/2	0 to 1 1/2	5 1/2	Ben	H	Wo	Mo	CI	10	22.0	2	.010	176.0	47.0	RS	Int	10	22.0	2	.010	26	
27	Nash-Ambassador 600	WR	Gem	20.2	Tra	2	19.7	0 to N 1/2	0 to 1 1/2	4 1/2	Ben	H	Wo	Mo	CI	10	22.0	2	.010	176.0	47.0	RS	Int	10	22.0	2	.010	27	
28	Oldsmobile-Special Six	WR	Sag	19.0	Tra	2	18.5	0 to N 3/4	1 1/2 to 3 1/4	4° 51' 10"	Var	H	Wo	Mo	CS	11	21.3	(v)	.015	159.8	44.0	RS	Int	11	21.3	1 3/4	.015	28	
29	Oldsmobile-Dynamic Six	WR	Sag	19.0	Tra	2	19.7	0 to N 3/4	1 1/2 to 3 1/4	4° 51' 10"	Var	H	Wo	Mo	CS	11	21.3	(v)	.015	159.8	44.0	RS	Int	11	21.3	1 3/4	.015	29	
30	Oldsmobile-Dynamic Six	WR	Sag	19.0	Tra	2	19.7	0 to N 3/4	1 1/2 to 3 1/4	4° 51' 10"	Var	H	Wo	Mo	CS	11	21.3	(v)	.015	159.8	44.0	RS	Int	11	21.3	1 3/4	.015	30	
31	Oldsmobile-Dynamic Six	WR	Sag	19.0	Tra	2	19.7	0 to N 3/4	1 1/2 to 3 1/4	4° 51' 10"	Var	H	Wo	Mo	CS	11	21.3	(v)	.015	159.8	44.0	RS	Int	11	21.3	1 3/4	.015	31	
32	Oldsmobile-Dynamic Six	WR	Sag	19.0	Tra	2	19.7	0 to N 3/4	1 1/2 to 3 1/4	4° 51' 10"	Var	H	Wo	Mo	CS	11	21.3	(v)	.015	159.8	44.0	RS	Int	11	21.3	1 3/4	.015	32	
33	Packard-Six	WR	Ovn	20.2	Tra	2	(m)	(s)	0 to 1 1/2	(u)	Ben	H	Wo	Mo	Cen	12	24 1/2	1 3/4	(cc)	165.0	...	RS	Int	(v)	(a)	1 3/4	.015	33	
34	Packard-Eight	WR	Ovn	20.2	Tra	2	(n)	(s)	0 to 1 1/2	(u)	Ben	H	Wo	Mo	Cen	12	24 1/2	1 3/4	(cc)	165.0	...	RS	Int	(v)	(a)	1 3/4	.015	34	
35	Packard-Six	WR	Ovn	20.2	Tra	2	(o)	(t)	0 to 1 1/2	(v)	Ben	H	Wo	Mo	Cen	12	24 1/2	1 3/4	(cc)	165.0	...	RS	Int	(v)	(a)	1 3/4	.015	35	
36	Packard-Six	WR	Ovn	20.2	Tra	2	(o)	(t)	0 to 1 1/2	(v)	Ben	H	Wo	Mo	Cen	12	24 1/2	1 3/4	(cc)	165.0	...	RS	Int	(v)	(a)	1 3/4	.015	36	
37	Plymouth-DeL. & Spec. DL	WR	Gem	18.2	No	2	19.0	N 1 to +1	0 to 1 1/2	4 1/2 to 6	Loc	H	Wo	Mo	Cen	10	18	2	.012	144.0	40.0	PS	Ext	6	16 1/2	2	.017	37	
38	Pontiac-Deluxe	WR	Sag	19.0	Tra	2	19.0	N 1 to +1	0 to 1 1/2	5	Ben	H	Wo	Mo	CS	11	21 1/2	(ee)	.015	159.0	44.0	RS	Int	11	21 1/2	(ee)	.015	38	
39	Pontiac-Deluxe	WR	Sag	19.0	Tra	2	19.0	N 1 to +1	0 to 1 1/2	5	Ben	H	Wo	Mo	CS	11	21 1/2	(ee)	.015	159.0	44.0	RS	Int	11	21 1/2	(ee)	.015	39	
40	Pontiac-Deluxe	WR	Sag	19.0	Tra	2	19.0	N 1 to +1	0 to 1 1/2	5	Ben	H	Wo	Mo	CS	11	21 1/2	(ee)	.015	159.0	44.0	RS	Int	11	21 1/2	(ee)	.015	40	
41	Pontiac-Deluxe	WR	Sag	19.0	Tra	2	19.0	N 1 to +1	0 to 1 1/2	5	Ben	H	Wo	Mo	CS	11	21 1/2	(ee)	.015	159.0	44.0	RS	Int	11	21 1/2	(ee)	.015	41	
42	Studebaker Champion 6	CL	Ross	14.2	Tra	3	Y	1 to 2	1 1/2 to 3 1/2	5 1/2	Loc	H	Wo	Mo	Com	9	17 3/4	1 3/4	.010	124.0	43.0	RS	Int	9	17 3/4	1 3/4	.010	42	
43	Studebaker-Commander 6	CL	Ross	14.0	Tra	3	Y	1 1/2 to N 1/2	1 1/2 to 3 1/2	5 1/																			

Transmissions and Universal Joints

[illegible]

ABBREVIATIONS:

- *—At extra cost
- Vaca-Matic (Underdrive) with fluid fly wheel and vacuum shift
- Hydra-Matic Drive—full automatic, hydraulically operated
- Drive-Master with vacuum and electric shift

BT—Roll and Trunion type

■ Turbo-Matic Drive—fluid my wheel and vacuum electric shift
 † Simple-Matic (Underdrive)—fluid fly wheel and vacuum shift
 †† Liqueomatic Drive—vacuum electric shift
 ‡ Liqueomatic Drive—vacuum electric shift
 (a) —4, on 2004-03-01 on 2002-03-01
 (b) —3.92, on 2004-03-23; 4.00 on 2004-7; 4.26 on 2005-8

Nb—Needle bearing

No—No or None
PL—Permanent lubrication
RG—Repack with gun grease
RL—Rod Linkage
RS—Rear springs
RV—Rod and Vacuum
SA—Stabilizing arms
Sag—Saginaw Steering Gear D

Sb—Steel bushing
Sp—Spur gear
Scl—Spicer Manufacturing Co.

Y—Yes

THE 1942 CARS

(Continued from Page 35)

entire 1942 line. Aluminum pistons have almost disappeared; they are gone from the 40 and 50 Series Buick, the Chrysler Royal, the DeSoto, Plymouth, Oldsmobile and Studebaker. In their place are pistons of cast alloy iron or steel.

Because of the change in piston material, many manufacturers have found it necessary to stiffen the connecting rod and the crankshaft, and increase the size of the bearings. Chrysler increased the cylinder bore on the Royal model and the Plymouth, increased both the bore and stroke of the DeSoto and the stroke only of the Dodge, in order to increase the engine horsepower output. Changes in combustion chamber design have been made in many cases to conform to the new piston materials.

One of the outstanding features of the new Ford is that it is available with either the 6-cylinder engine or the V-8 engine, each having a 90-hp. rating. The V-8 has a new mounting for the fan, making it belt-driven. A new pancake style distributor is used, with separate mounting for the coil, which will simplify distributor service.

Automatic transmissions are more numerous, now being available on Hudson, Mercury and Lincoln. They are continued on the Chrysler-built cars with the exception of Plymouth. With the exception of Hudson, these automatic transmissions are used in conjunction with fluid flywheels. Service men will have some studying to do on transmission constructions this year, and service operations will have increased time allowances to provide for proper hook-up of the various systems of gear shift control and engine tuning. The Oldsmobile Hydra-Matic transmission is being continued as optional equipment. The same unit is being offered as optional equipment by Cadillac again this year.

So, while there have been quite a few detailed changes in the 1942 cars, they do not appear to be the type of changes that affect labor operations to a great extent except for the front-end sheet metal and the automatic transmissions.

Radioactive Spark Plug

A patent on a new radioactive polonium spark plug has just been granted and assigned to the Firestone Tire & Rubber Co.

Because of its ability to deliver a strong, hot spark at the first turn of the motor, the polonium plug, it is claimed, saves gasoline every time the engine is started. This saving is particularly important under cold weather conditions where accurate scientific tests are said to have revealed that a motor chilled at 15 deg. below zero

will start 30 per cent more quickly when polonium plugs are installed.

The electrodes of the plugs are impregnated with polonium which constantly shoots off alpha particles in all directions. The action of these particles on the air surrounding the electrodes is such that the resistance to an electrical spark is greatly reduced. Thus an electrical bridge is formed between the electrodes over which the spark readily travels.

Polonium, the first radioactive element isolated by Mme. Curie in her search for radium, emits 4000 times as many alpha rays per sec. as radium.

Reynolds C. Frampton

Reynolds C. Frampton, 66, former president of the Hudson-Frampton Motor Car Co., St. Louis, Mo., died Oct. 7. He was a former president of the St. Louis Automobile Dealers Association, an officer in Grace Methodist Church, native of Clarion, Pa. He was educated at the University of Pittsburgh and went to St. Louis in 1916. After his retirement in 1936, the firm was carried on by former employees. Frampton suffered an injury in 1937 when his car overturned near Little Rock, Ark. He had been in the care of physicians since.



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with a New Departure**

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competent engineers choose
for the majority of original
installations.**



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service wherever you see this
sign. Authentic records—complete
stocks—sudden service.

NEW DEPARTURE
THE FORGED STEEL BEARING

CONSERVATION



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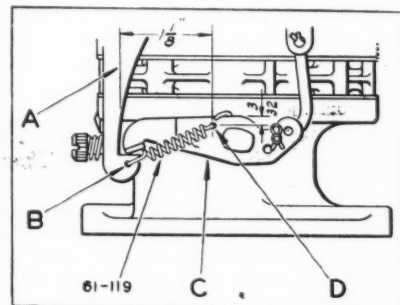
Use it to sell more ring jobs . . . and
make bigger profits on Used Car Sales.

SERVICE FROM THE

Won't Return To Slow Idle

When servicing the 1941 Chrysler and DeSoto cars equipped with the Simplimatic transmission, an occasional complaint may be encountered of the throttle sticking open, preventing the engine from returning to a slow idle speed.

These cases can be corrected by installing a spring (Carter No. 61-119) between the dash pot lifter link and the throttle arm. Referring to the illustration, drill a No. 52 hole in the lifter link at "B" and another in the throttle arm at "D," and install the spring between these two points. Courtesy Carter Carburetor Corp.



Front End Noise

A popping noise in the front end of 1940 model Chrysler-built cars, particularly when going over a bump while in a turn, may be caused by either insufficient lubrication or the improper installation of the lower control-arm pivot-bar bushings. The first step in the correction of this condition is to lubricate the control arm bushings thoroughly with the load off the wheels. If this does not eliminate the noise, the location of these bushings must be checked to be sure the pivot bar is not bottoming in the bushing.

Testing Bearings

Pontiac advises against the use of the conventional bearing oil leak detector, which uses the method of supplying oil under pressure to the bearings as the crankshaft is turned over slowly by hand.

The bearings used in Pontiac engines are designed with an annular oil groove, and with a chamfer at the

HINTS

FACTORIES

parting line. When oil is forced into this bearing under pressure, it will fill the oil groove and some will escape through the chamfer, making it appear as though the bearing were poorly fitted.

It is recommended that, when it becomes desirable to test the fit of Pontiac connecting rod and main bearings, the test be made by installing a small piece of shim stock in the bearing and bolting the bearing cap back into place. Then turn the engine over by hand. If there is no drag, indicating that the bearing is loose, undersized bearing should be installed. Connecting rod bearings should be tested with a shim .0015 in. thick, and main bearings should be checked with a .002 in. shim.

Choke Trouble

Under certain conditions, the automatic choke housing of the 1941 Studebaker President cools too rapidly, closing the choke valve while the engine is still warm. This leads to a flooding condition when attempting to start the engine while it is warm.

To correct the condition, a parts package has been released by the factory. It consists of a new fast idle rod, spring, spring stop plate and attaching parts. This package has been assigned part No. 515326.

To make the installation, attach the spring stop plate under the forward inner float chamber cover screw. Check the fast idle adjustment according to original instructions, except that the throttle stop screw should be placed on the next highest step against the lip of the highest step on the fast idle cam. Check the wide open throttle kick. With the throttle in the wide open position, the spring on the new fast idle rod should be compressed 1/32 in. If not, bend the spring stop plate as required.

Gas Mileage

A contributing factor to high gasoline consumption in the 1941 Dodge may be the use of an incorrect gasket between the carburetor and the manifold. This gasket should have four slots extending through to the inside diameter of the gasket. If these slots are not present, the vacuum economizer in the carburetor will not operate properly.

AT ITS BEST!



NOW CAR OWNERS HELP
NATIONAL DEFENSE AS WELL
AS THEIR POCKETBOOKS

when they have you install the
piston ring with the strongest guar-
antee against excessive oil con-
sumption and blow-by . . .



PISTON RINGS AND PISTON EXPANDERS

See your Ramco Jobber or write, Ramsey Accessories Mfg. Corp., 3711 Forest Park Blvd., St. Louis, Mo. In Canada: 144 Front Street, W., Toronto, Ontario.

FREEZING AHEAD

(Continued from Page 37)

that temperature. Selling an additional quart to provide protection to 10 deg. below zero "just to be safe" is wasteful, if the temperature very seldom goes that low in that particular locality.

There's more to the picture than simply protecting the cooling system, however. Everything that contributes to the operation of the car and the comfort of the passengers should be taken into consideration.

An engine tune-up which includes a compression test should be made. Weak compression leads to hard starting and to waste of gasoline and oil, as well as being a drain on the electrical system. In some cases it may be necessary to install new rings, or do a valve and carbon job in order to restore normal compression.

Battery efficiency is reduced in proportion to temperature drop, and no car should be allowed to enter the winter season with a weak battery. Battery cables and terminals should be renewed if they show signs of wear or corrosion. The generator output and the operation of the current-

voltage regulator should be checked and adjustments made if needed to supply a full charge to the battery. Spark plugs should be cleaned and adjusted, spark plug wires, high and low-tension cables should be inspected for poor terminals or broken insulation, distributor points should be cleaned and properly adjusted.

Winter driving is hard on tires. Worn or bald tires should be regrooved to restore the non-skid tread pattern in the interest of safety; badly worn tires should be replaced. Every car should be equipped with a set of tire chains.

The windshield wiper is a very important item of winter service. It should be checked for operation of the motor, and the blade should be replaced if it does not produce a clean sweep on the windshield glass.

Automobile heaters are the largest single item of winter accessory sales. They are available in dash-mounted styles and under-the-seat styles, in a wide price range to meet the requirements of every owner. Sell your customers on this item of winter comfort. Hand-in-hand with the sale of hot water heaters goes the sale of winter-temperature thermostats, as well as water hoses, water pump service and radiator covers.

Then, of course, there is the item of winter lubrication. Change the crankcase oil to winter grade; drain and flush the transmission and differential, and refill with winter lubricant.

Chevrolet Selects

17 for Army Service

Extension of service facilities, expansion of service personnel, and the establishment of a Military Mechanical Service Department within Chevrolet's service organization were announced by William E. Holler, general sales manager. Appointment of 17 service managers for military duty swells the total of such advisers to 26, Holler said.

Under the supervision of Ed Hedner, national director of service for Chevrolet, these 26 service experts have been stationed throughout the country wherever Army camps are located. Their principal duties will include consultation with Army unit commanders in the field on problems pertaining to Chevrolet military vehicles, assisting Army personnel in the training of truck operators and service men, and holding service schools at the Army's request.

Heads Jobber Sales

R. M. Ellis, vice-president in charge of sales of The Dole Valve Co., Chicago, announces the appointment of E. C. "Ted" Curtiss as sales manager of the Automotive Jobbing Division. Ted is well-known to the football fans of the Middle West as a Big Ten gridiron official.



Confidence

★ Confidence is the reward of merit. In bearings it is the natural result of improved performance . . . of longer bearing life . . . of smoother operation.

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“My three sons and I feel we’re fortunate to have Studebaker as our partner these days”

I THINK there’s a good future in the automobile business today—for the same reason I thought so over 20 years ago when I first became a Studebaker dealer,” writes Mr. E. E. Bell of Salina, Kansas.

“And I’m proud to say that my three sons agree with me 100%. Each one of the boys now heads a department here with me and each one of them firmly believes that selling and servicing automobiles is the best possible kind of a career.

WE think we would do pretty well these times, even if the new 1942 Studebakers were only half as appealing as they are—and that’s because we have utmost confidence in the common-sense, workable merchandising plans you’ve developed for our use.

IN fact, if I may say so, that’s one of the real satisfactions of being a Studebaker dealer. The Studebaker

executives I’ve met at service and business management meetings have always impressed me as hard-hitting realists—men with their mental sleeves rolled up who talk facts as dealers know the facts to be.

“I’ve made some money through my own efforts but I’m frank to say that I give a lot of credit for my progress to the Studebaker factory’s helpful merchandising programs.

THE way you saw the present situation coming and the plans you worked out for coping with it—well, you’ve topped anything you’ve ever done for Studebaker dealers in the past. And take my word for it, that

certainly has been a great deal.”

★ ★ ★ ★

Studebaker Dealer Bell’s point of view is the same as that of hundreds of other long-time Studebaker dealers. Cooperation between factory and dealer is the basis of any real success in the retail automobile business—and particularly so, in these days, when national defense requirements make it necessary for all of us to be alert and prepared for anything that may come up.

Studebaker’s defense-time merchandising plans are available to all Studebaker dealers. And all Studebaker dealers may rest assured that forward-looking plans are now being developed for the post-emergency period when it comes.

STUDEBAKER

THE GREAT INDEPENDENT

FOR AMERICA’S DEFENSE

Studebaker is building an unlimited quantity of airplane engines, military trucks and other matériel.

FOR AMERICA’S TRANSPORTATION

Studebaker is building a limited number of passenger cars, commercial cars and trucks.

Motor Car Price, Weight and Body Table

Following are delivered prices at factory, as of Oct. 1, 1941, for cars with standard equipment and include all federal taxes with exception of Chrysler, Crosley, De Soto, Dodge, Ford, Lincoln, Mercury and Plymouth. Optional equipment, state or local taxes, transportation charges and finance charges are extra.

BODY, MAKE AND MODEL	Delivered Price	Shipping Weight	BODY, MAKE AND MODEL	Delivered Price	Shipping Weight	BODY, MAKE AND MODEL	Delivered Price	Shipping Weight	BODY, MAKE AND MODEL	Delivered Price	Shipping Weight	BODY, MAKE AND MODEL	Delivered Price	Shipping Weight	BODY, MAKE AND MODEL	Delivered Price	Shipping Weight
BUICK			CHEVROLET			DODGE			LINCOLN-ZEPHYR			PACKARD			PONTIAC		
Special 40A			(Continued)			(Continued)			Standard			Clipper Spec.			(Continued)		
Util. Coupe	1076	3510	Fleetline BH			Custom			Sedan	1700	3980	6-2000			Torpedo Six		
Conv. Coupe	1361		Aerosedan, 2d.	3105	3165	Town Sedan	1105	3280	Club Coupe	1700	3810	Bus. Coupe	1216	3365	Sedan, 2d.	1015	3265
Sedan, 4d.	1171	3650	Sportmaster			Sedan, 7p.	1395		Conv. Coupe	1650	3790	Club Sedan	1251	3415	Sedan, 4d., 6w.	1062	3305
Bus. Sedanet, 2d.	1097	3555				Limousine	1475		Conv. Coupe	2150		Tour. Sedan	1286	3435	Sedan, 4d., 4w.	1062	3295
Fam. Sedanet, 2d.	1134	3610													Conv. Sed. Cpe.	1251	
			CHRYSLER														
Special 40B			Royal 6						Custom			Clipper Cust.			Streamliner Six		
Sedan, 4d.	1213	3760	Coupe	1075	3350	FORD			Sedan	1795	3980	6-2010			Sedan Coupe	1060	3355
Bus. Sedanet, 2d.	1108	3650	Club Coupe	1168	3430	Special Six			Club Coupe	1795	3810	Club Sedan	1306	3440	Sedan, 6w., 4d.	1118	3415
Fam. Sedanet, 2d.	1166	3705	Brougham, 2d.	1154	3455	Coupe, 3p.	780		Coupe, 3 p.	1735	3790	Tour. Sedan	1341	3460	Station Wagon	1360	
Est. Wagon	1561		Town Sedan	1177	3500	Tudor Sedan	815					Model 2020			Sed. Cpe., Chief	1112	3400
			Limousine	1222	3505	Fordor Sedan	850	3033	Continental			Conv. Coupe	1421	3315	Sedan, 4d., Chief	1170	3460
Super-Equip.			Limousine	1535					Cabriolet	3000					Station Wagon	1412	
40B						De Luxe Six			Coupe	3000	4060	Clipper Spec.					
Sedan, 4d.	1297	3785				Tudor Sedan	805	2958				8-2001			Torpedo Eight		
Fam. Sedanet	1224	3725	Windsor 6			Sedan Coupe	840	3122	Custom			Bus. Coupe	1271	3490	Bus. Coupe	993	
			Coupe	1140	3375	Fordor Sedan	865	3045	Sedan	2950	4380	Club Sedan	1306	3540	Sport Coupe	1035	3320
Super 50			Conv. Coupe	1228	3450				Limousine	3075		Tour. Sedan	1341	3560	Sedan Coupe	1051	3320
Sedan, 4d.	1391	3890	Brougham, 2d.	1420	3685	Super Del. Six									Sedan, 2d.	1041	3325
Conv. Coupe	1570		Town Sedan	1220	3465	Tudor Sedan	850	3030				Clipper Cust.			Sedan, 4d., 6w.	1088	3360
Sedanet, 2d.	1339	3800	Sedan, 4d.	1255	3520	Sedan Coupe	885	3136	MERCURY			8-2011			Sedan, 4d., 4w.	1088	3355
			Town Sedan	1295	3530	Fordor Sedan	910	3109	Coupe, 3p.	995	3073	Club Sedan	1361	3565	Conv. Sed. Cpe.	1277	
Century 60			Sedan, 8p.	1605					Sedan, 2d.	1030	3228	Tour. Sedan	1396	3585			
Sedan, 4d.	1465	4065	T. & C. Wagon, 6p.	1595	3640	Super Del. Six			Town Sedan	1055					Streamliner Eight		
Sedanet, 2d.	1413	3985	Limousine	1685	3725	Tudor Sedan	920	3179	Club Conv.	1065	3263	Model 2021			Sedan Coupe	1088	3430
						Station Wagon	1115	3453	Station Wagon	1215	3288	Conv. Coupe	1531	3585	Sedan, 4d., 6w.	1144	3485
Roadmaster 70						Special V8				1260	3528	Super Eight-160			Station Wagon	1386	
Sedan, 4d.	1601	4150	Saratoga 8			Coupe, 3p.	790		NASH			Clipper-2003			Sed. Cpe., Chief	1138	3460
Conv. Coupe	1822		Club Coupe	1325		Tudor Sedan	825		Ambassador			Club Sedan	1678	3985	Sedan, 4d., Chief	1196	3515
Sedanet, 2d.	1528		Brougham, 2d.	1380	3820	Fordor Sedan	860		600			Tour. Sedan	1739	4005	Station Wagon	1438	
			Sedan, 4d.	1355					Sedan, trk., 4d.	993	2655	Model 2023					
Limited 90			Town Sedan	1450	3900	De Luxe V8			Bus. Coupe	918	2540	Conv. Coupe	1842	3905	STUDEBAKER		
Tour. Sedan, 8p.	2628	4710				Coupe, 3p.	815	2978	Sedan, 2d.	958	2580	Model 2004			Champion		
Limousine	2734	4765	New Yorker 8			Tudor Sedan	850	3141	Sedan, fb., 4d.	968	2650	Tour. Sedan	1954	4090	Custom		
Sedan, 4d., 6p.	2418	4685	Coupe	1385	3760	Sedan Coupe	875	3065	Sedan, Slps., 2d.	948	2605	Model 2005			Coupe, 3p.	810	2415
For. Sedan	2576	4695	Club Coupe	1450	3815	Fordor Sedan	885	3161				Model 2005			Coupe, 5p.	835	2455
			Conv. Coupe	1540	4065	Sup. De Luxe V8			Ambassador 6			Tour. Limousine	2231	4445	Club Sedan	840	2495
CADILLAC			Brougham, 2d.	1440		Coupe, 3p.	860	3050	Sedan, trk., 4d.	1159	3335	Tour. Sedan	2103	4325	Cruis. Sedan	870	2520
Series 61			Sedan, 4d.	1475	3905	Tudor Sedan	895	3159	Bus. Coupe	1034	3200	Model 2055			De Luxe		
Club Coupe, 5p.	1560	4035	Town Sedan	1520	3925	Sedan Coupe	920	3120	Brougham, 2d.	1124	3230	Bus. Limousine	2077	4435	Coupe, 3p.	845	2435
Sedan, 4d.	1647	4115				Fordor Sedan	930	3200	Sedan, fb., 4d.	1134	3335	Bus. Sedan	1949	4315	Coupe, 5p.	870	2470
			Crown Imper.			Conv. Coupe	1090		Sedan, Slps., 2d.	1114	3285				Club Sedan	875	2520
Series 62			Sedan			Station Wagon	1125	3468				Cus. Sup. 8-180			Cruis. Sedan	905	2545
Club Coupe, 5p.	1667		Limousine						Ambassador 8			Clipper 2006			Commander Six		
Sedan, 4d.	1754					HUDSON			Bus. Coupe	1209	3485	Club Sedan	2169	4010	Custom		
Sedan, 4d.	1836		CROSLEY			Six			Brougham	1174	3385	Tour. Sedan	2271	4030	Sedan Coupe	1108	3195
Conv. Coupe, 5p.	2020		Conv. Coupe			Club Sedan, 2d.			Sedan, fb., 4d.	1184		Special 2006			Cruis. Sedan	1128	3265
			Conv. Cabriolet			Sedan, 4d.			Sedan, Slps., 2d.	1134	3485	Conv. Victoria	4708	3920	Land Cruiser	1163	3290
Series 63			Pkw. Delivery			Sedan, 4d.						Model 2007			De Luxe		
Sedan, 4d.	1882	4115	Pickup Delivery			Club Coupe			OLDSMOBILE			For. Sedan	3126	4390	Sedan Coupe	1153	3210
			Liberty Sedan			Util. Coupe			Special Six-66			Tour. Sedan	2527	4280	Cruis. Sedan	1173	3280
Series 60 Spec.			Panel Delivery						Bus. Coupe	992	3230	Cabriolet	4995	4075	Land Cruiser	1208	3305
Sedan, div., 4d.	2435		Station Wagon			De Lux Six			Club Coupe	1035	3265				Skyway		
	2589					Club Sedan, 2d.			Club Sedan	1050	3270	Model 2008			Sedan Coupe	1188	3240
Series 67						Sedan, 4d.			Sedan, 2d.	1040	3280	Tour. Limousine	2742	4540	Cruis. Sedan	1208	3300
Sedan, 5p.	2896		DE SOTO			Conv. Sedan			Town Sedan	1088	3315	LeB. Limousine	5937	4850	Land Cruiser	1243	3315
Sedan, div., 5p.	3748		De Luxe						Conv. Coupe	1098	3320	LeB. Sedan	5681	4740			
Sedan, 7p.	3745		Bus. Coupe	1010	3190	Super Six			Station Wagon	1376		Town Car	5097	4200	President 8		
Imperial, 7p.	3204		Coupe, 6p.	1092	3270	Club Sedan, 2d.									Custom		
			Sedan, 2d.	1075	3270	Sedan, 4d.			Dynamic Six			PLYMOUTH			Sedan Coupe	1242	3440
Series 75			Sedan, 4d.	1103	3315	Club Coupe			Club Sedan	1095	3395	De Luxe			Cruis. Sedan	1262	3485
Sedan, 5p.	3306	4750	Town Sedan	1147	3335	Conv. Coupe			Sedan, 4d.	1130	3455	Coupe	812	2930	Land Cruiser	1297	3510
Sedan, div., 5p.	3459	4810				Station Wagon			Sedan, 4d.	1151	3465	Club Coupe	885	2990			
Sedan, 7p.	3459	4800	Custom									Sedan, 2d.	850	2985	De Luxe		
Imperial, 7p.	3613	4860	Coupe	1046	3205	Commodore Six			Special Eight			Sedan, 4d.	889	3025	Sedan Coupe	1287	3445
For. Sedan, 5p.	4330	4900	Club Coupe	1142	3270	Club Sedan, 2d.			Bus. Coupe	1035	3365	Util. Sedan, 2d.	842		Cruis. Sedan	1307	3500
For. Sedan, 7p.	4484	4915	Conv. Coupe	1317	3510	Sedan, 4d.			Club Coupe	1077	3405				Land Cruiser	1342	3515
Bus. Sedan, 9p.	3152	4750	Brougham	1142	3305	Club Coupe			Club Sedan	1093	3405	Spec. De Luxe					
Bus. Imperial, 9p.	3306	4810	Sedan, 4d.	1152	3330	Conv. Sedan			Sedan, 2d.	1083	3410	Coupe	855	2955	Skyway		
			Town Sedan	1196	3365	Station Wagon			Town Sedan	1130	3435	Club Coupe	928	3035	Sedan Coupe	1322	3470
CHEVROLET			Limousine	1504					Conv. Coupe	1319		Conv. Coupe	1078	3255	Cruis. Sedan	1342	3540
Stylemaster						Commodore 8			Station Wagon	1418		Sedan, 2d.	895	3020	Land Cruiser	1377	3540
BG						Club Sedan, 2d.						Sedan, 4d.	935	3060			
Bus. Coupe			DODGE			Sedan, 4d.			Dynamic Eight			Town Sedan	980	3085			
Coupe, 5p.	3055		De Luxe			Club Coupe			Club Sedan	1138	3520				WILLIS		
Town Sedan, 2d.	3060		Coupe	895	3080	Conv. Sedan			Sedan, 4d.	1225	3570	PONTIAC			Coupe, 2p.	758	2150
Sport Sedan, 4d.	3085		Club Coupe	995	3155							Torpedo Six			Sedan, 4d.	811	2261
	3125		Sedan, 2d.	958	3155	Com. Custom 8			Custom Eight			Bus. Coupe	967	3210	Coupe, Del.	835	2200
			Sedan, 4d.	998	3195	Club Coupe			Sedan, 4d.	1376		Sport Coupe	1009	3260	Sedan, 4d., Del.	862	2295
Fleetmaster						Conv. Sedan			Conv. Coupe	1561		Station Coupe	1025	3255	Sedan, Plains	887	2250
BH															Station Wagon	915	2345
Bus. Coupe																	
Coupe, 5p.	3080																
Town Sedan, 2d.	3085																
Sport Sedan, 4d.	3130																
Cabriolet	3180																
Station Wagon	3385																
	3425																

Aeronautical Inspectors Being Sought by Navy

The constantly increasing activities of the Navy Department call for many inspectors of aeronautical engineering materials. For many months the Civil Service Commission has had open an examination for inspectors covering several branches of aeronautical engineering materials. The announcement has now been re-issued to liberalize the provision for using national defense training courses to meet the experience requirements. The positions pay from \$1,620 to \$2,600 a year and the maximum age is 65 years.

There is a particular need for junior inspectors of engineering materials. For these positions applicants need only have completed an appropriate defense training course. Acceptable courses include those in tool engineering, gaging and inspection methods, instrument design, and related courses in materials inspection or in engineering fundamentals and basic principles.

For the other positions, the completion of any appropriate engineering defense training course will be accepted for (1) year only of the prescribed education or experience. In general, applicants must have had experience in the inspection or testing of engineering materials to determine compliance with specifications or standards of manufacture.

Applications may be filed at the Commission's Washington office until further notice.

New Blackout Lights For Army Motorcycles

Army motorcycles furnished by the Quartermaster Corps are now having their lights and lighting switches changed to blackout ignition, the War Department has announced. The change is being made to enable motorcycles to avoid detection during air-raid and other combat blackouts.

The new-type switch can be identified by a winged-type operating knob, having a cover over the key opening and a safety button for service lights. This is a substantial improvement over the earlier type switches previously provided.

The change is being made through the cooperation of motorcycle manufacturers and replacements will be made as soon as practicable.

AAA To Oppose Ban on Use of Cars During Emergency

Full utilization of the private passenger car as a vital element in the nation's defense structure will be a major point of discussion at the forthcoming 39th annual convention of the American Automobile Association at White Sulphur Springs, W. Va., Nov. 12 to 15.

With approximately 500 representatives of A.A.A. motor clubs of the U. S. and Canada in attendance, the meeting will tackle the variety of problems surrounding motor vehicle operation during the emergency as the result of priorities, shortages, price increases, higher taxes and other factors.

Pointing out that the A.A.A. has pledged unstinting cooperation with national defense efforts, Thos. P. Henry of Detroit, Mich., president of the national motoring body, declared today that there is a definite responsibility on the part of organized

motordom to prevent uncalled-for curtailment in passenger car operation throughout the duration of the emergency.

Heads Sacramento Branch

James M. Ball has just been named Sacramento branch manager of the White Motor Co., according to announcement of W. D. Patterson, Pacific Coast regional manager. Ball has been with the White organization for 15 years and has acquired a wealth of experience to fit him for his new position.

McQUAY-NORRIS is Piston Ring Headquarters



McQuay-Norris produced the first replacement piston ring. McQuay-Norris introduced the first oil control ring. McQuay-Norris introduced Altimized Engineered Set Piston Rings. McQuay-Norris introduced Altimizing. McQuay-Norris introduced Electalloy. McQuay-Norris has the finest dynamometer laboratory in the piston ring industry. McQuay-Norris is piston ring HEADQUARTERS.

"LET'S STOP WASTE!"

LEGALLY SPEAKING

A lawyer's interpretation of Federal and local court decisions of interest to repairmen, presented each month

By C. R. ROSENBERG, JR.

Words That Cost Money

Hard words may cost the speaker important money if what he says is defamatory. The law will award financial compensation to a person injured by slanderous words.

"Slander," explains a Missouri court recently, "is the speaking of base and defamatory words which tend to the prejudice of the reputation, office, trade, business or means of getting a living of another."

But it isn't slander if there's nobody around to hear it!

"The slanderous words must be spoken in the present or hearing of some third party in order to give rise to an action for slander," continues the same court. "It is the publication of the defamatory words that constitutes an action for slander. Publication, in the law of defamation, is the communication of defamatory matter to a third person. Since the basis of an action for defamation is damages for injury to character in the opinion of other men, there must be a publication of the language."

Publication of slander is not necessarily by writing or printing. The mere speaking of the slanderous words in the hearing of one person (not the person slandered) is publication. The speaking of the words to the slandered person himself is not slander if nobody else hears them.


So, if you simply must get it off your chest, tell it to him **privately** where nobody else can hear! (*Loneragan vs. Love, 150 Southwestern Reporter, second series, 534.*)

Reasonable Protection

To protect themselves from competition on the part of former employees, many employers require each employee to sign a written contract whereby the employee agrees not to engage in the same line of business within a given area for a specified time after he leaves the employer. Such contracts are in restraint of trade, but are permitted by law so long as the terms are reasonable. If the restraint imposed is unreasonable and exceeds what is necessary for the proper protection of the employer, the contract is illegal.

"A restraint of trade is unreasonable," said an Ohio court in a recent case, "if it is greater than is required for the protection of the person for whose benefit the restraint is imposed or if it imposes undue hardship upon the person restricted."

In the Ohio case, the restraint in the contract between employer and employee prohibited the employee from offering his services in his particular line of work to any employer in the State of Ohio for a period of three years after he left his employer. The

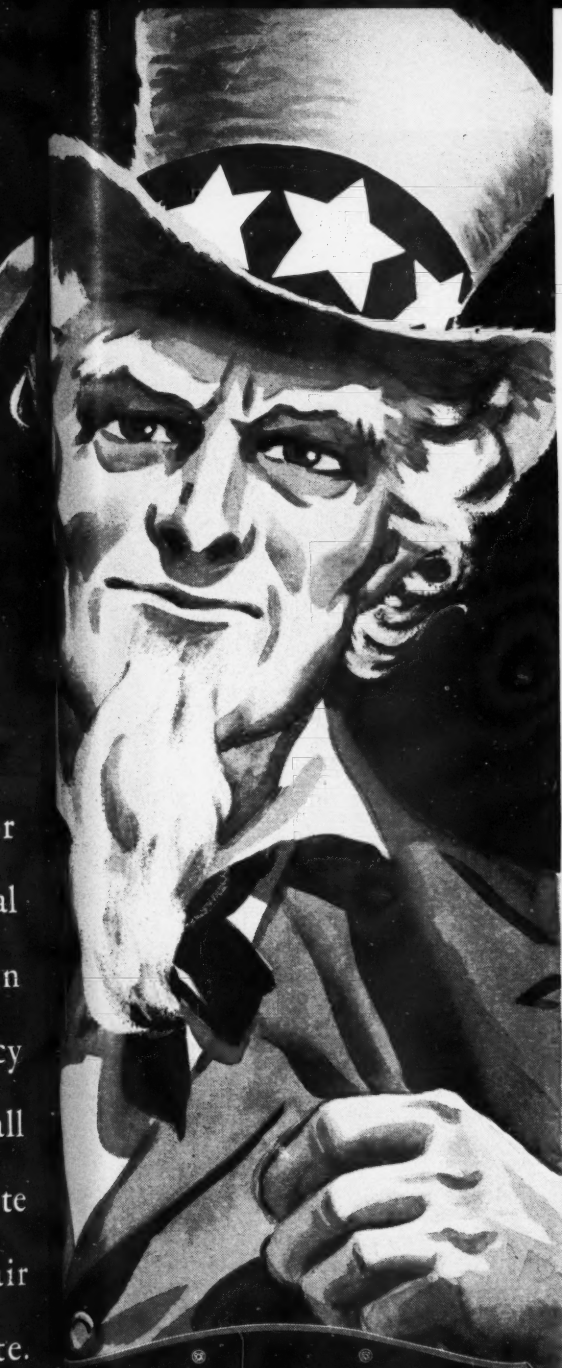


Time, material and labor are the essence of national defense. It's essential in this national emergency that we economize on all three of them. Incomplete and incompetent repair jobs always mean waste. Let's stop waste and save time, parts and labor!



At the right is a miniature of a shield that alert repairmen are hanging on the walls of their shops. The actual shield is bronze colored, 13 by 16 inches.

McQUAY-NORRIS
Let's keep it right



**THE MAINTENANCE
OF TRANSPORTATION IS A
VITAL NECESSITY IN OUR
NATIONAL EMERGENCY. IT
IS OUR AIM TO HELP KEEP
AMERICA'S CARS, TRUCKS
AND TRACTORS RUNNING
EFFICIENTLY AND
ECONOMICALLY.**



HERE'S THE WAY!

There's no excuse for sloppy ring jobs that waste parts and labor. Follow the lead of smart repairmen and use only McQuay-Norris Altinized Engineered Piston Ring Sets! There's a set of these famous rings specially engineered for every job that comes to your shop. Engineering with McQuay-Norris is a vital principle. Use McQuay-Norris rings and get the job done right the first time!



McQUAY-NORRIS MANUFACTURING CO.
Let's keep cars, trucks and tractors rolling!

court decided that this contract was invalid because it imposed a greater restraint than was necessary for the employer's protection. (*Gates-McDonald vs. McQuilkin*, 34 *Northeastern Reporter*, second series, 443.)

"Farming Out" Employee

While a repairman is responsible for the acts of his employees in the course of their employment, what happens when the repairman "farms out" an employee to a customer and the employee, while on the customer's work, injures someone? Is the repairman liable for the injury inflicted by his employee in such circumstances?

In Nebraska recently a van company hired a hoisting truck and operator from the owner of the truck by the hour. While engaged in the van company's work under the direction of that company's general manager, the operator, of the hoist truck, through alleged negligence, injured an employee of the van company.

The injured person sued the owner of the hoist truck on the ground that his injuries were the result of the negligence of the truck operator, who was the truck owner's employee.

Pointing out that, while the truck operator may have been the general employee of the truck owner, he was the particular employee, at the time, of the van company, which controlled and directed his work, the Nebraska court said:

"The right of control determines the relationship of employer and employee. The one who has the right of control over an employee should be responsible for his acts."

Hence, since the truck owner had no control over the employee at the time of the accident and the van com-

pany had control over him, the van company and not the truck owner would be liable for any damage he might wrongfully do in the course of his employment.

The court carefully explained that, if the truck owner had taken a contract to do the job for the van company and had had the operator on the work as his own employee, the truck owner would have been liable for any injury done by the operator. In that case, it would have been the truck owner's own work by contract. As it was, however, the van company simply hired the hoist truck and the operator to use on their own work under their own control and direction. (*Monsfield vs. Andrew Murphy and Son*, 298 *Northwestern Reporter*, 749).

Don't Hit Him!

"Fighting words" may provoke the repairman to retaliate with his fists, but the fact that the other fellow "egged him on" with abusive language will not help him with the law.

"A verbal provocation," said a Texas court recently, "does not justify an assault and battery, although evidence of an insult or abusive language towards or concerning the assaulting party may be given in mitigation of the punishment for that offense."

Meaning that the judge may take the insulting language into consideration and give the assaulting party a lighter punishment.

Not much legal redress for insulting language. The aggrieved party could sue the "insulter" for slander if the language happens to be slanderous as well as insulting. (*Moore vs. State*, 151 *Southwestern Reporter*, second series, 595).

BEST ROOMS WOMEN LIKE

BY ROSE LU GOLDMAN

WITH the spotlight of several nation-wide advertising campaigns turned on service-station rest rooms, alert service men everywhere are becoming increasingly aware of the importance of keeping these rooms clean, attractive, and well-equipped.

The general public has come to expect and demand cleanliness and pleasantness in rest rooms. In fact,

the assurance that they will find these qualities in the modern super service station has been a major factor in determining the success these stations have enjoyed with the motoring public.

Just what must be added to the average rest room to make it pleasant? What is that *extra* something "a lady appreciates"?

First of all, rest rooms must be scrupulously clean (preferably with light-colored walls) and with floors and equipment that are not only clean, but also look clean. This means a lot of work and constant alertness on the part of the station operators, but most patrons are not so inclined to litter up a rest room if it is clean when they enter.

As to location, we have found that most women prefer rooms with entrances directly from the outside of the station, so that they need not walk through a roomful of strange men. Then, too, the location should be clearly indicated so that strangers need not ask embarrassing questions about where it is.

The room, to be pleasant, must be airy—not heavy with the odor of strong disinfectants. After all, strong disinfectants immediately remind one of dirt and this will undo all your work to create an impression of cleanliness.

Light is even more important if a room is to appear clean. A dim bulb suspended from the ceiling by an electric cord, is not sufficient light no matter how small the room may be. Ideal (and inexpensive, though they create an impression of luxury) are the tubular lights that hang beside the mirror. And, speaking of mirrors, clean and clear mirrors that are well-lighted are essential in all ladies' rooms. Ask your wife what she thinks of the mirror and lights you have provided. She's a better judge of such matters than ten men.

The soap is important, too. A dirty or worn bar is hardly inviting, especially if the soap is of the strong type economical men are likely to provide in women's rest rooms. Some dispensers are on the market today providing a nationally known mild soap, which, in granulated form, completely eliminates waste, for there is no sliver left to be discarded.

What we've said about ladies' rooms applies equally to men's rooms. Salesmen and other men who have occasion to travel and retravel the same route stop again and again at stations they know provide clean and pleasant accommodations.

Good rest rooms are essential if you want your station to stand out above others along the highway!


Cremins Moves Up

C. S. Fletcher, Studebaker sales manager, has announced the transfer of E. J. Cremins to the home office at South Bend, where he will assist R. A. Reese, manager of Business Merchandising division.

Cremins joined Studebaker in 1936. He was previously employed by Gar Wood Industries, Inc. He served as a district sales manager in Studebaker's New York and Boston branches before being transferred to the Business Merchandising division in the New York area last year.

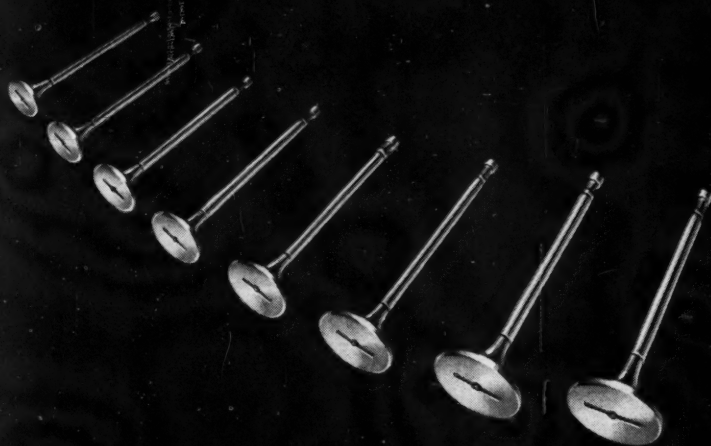
Exclusive!
only **McQUAY-NORRIS**
Factory Type Set
**PISTON RINGS ARE MADE OF
ELECTALLOY AND ALTIMIZED**

*"...and man,
what a difference
that makes!"*



**MADE TO OUTPERFORM
PRICED TO OUTSELL**

For More Than a Quarter-Century
Rich Valves Have Been Contributing
to *Better Engine Performance*



RICH VALVES

of Silcrome-X Steels

McQUAY-NORRIS JOBBERS

SPEED DEFENSE

(Continued from page 23)

those items likely to become scarce.

Regardless of the amount of equipment, tools, and parts now in the hands of jobbers, ultimate shortages seem inevitable. Hand tools and equipment, as already noted, do not enjoy priority ratings. Instead, certain types of equipment, particularly machine tools and many hand tools, are urgently needed for defense. When the present commercial supply is exhausted, it is debatable whether it

can be renewed from available material.

Replacement parts are another matter. The OPM has granted an A-10 priority rating on parts for passenger cars and small trucks and an A-3 rating on parts for trucks of 1½ tons and larger. These are defense ratings, and parts manufacturers should get the preference on needed materials over a host of other consumer-goods makers. Restriction of production so far has been mild. The limitation originally set for the 14 weeks ending Dec. 31 was 60 per cent of the total replacement sales between Jan. and June 30. This meant that the daily or weekly rate of pro-



**"I'M HELPING
DEFENSE
EVERY TIME
I SELL
VALVOLINE"**

You, too, will be helping Defense by co-operating with the need for conserving vital defense materials . . .

You will attract new thrift-minded customers . . .

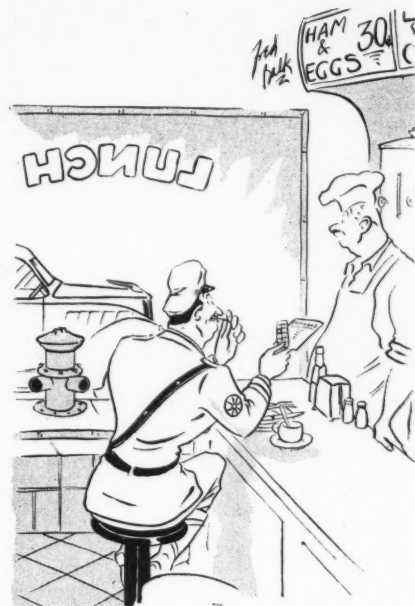
You will have a powerful reason for holding your present service trade



—when you tie in with the timely "V for Victory" campaign created by Valvoline, First of the Pennsylvania Oils!

Wall banners and twirlers free—complete personalized plan for creating more service business. Get facts NOW.

VALVOLINE OIL COMPANY
540 E. FIFTH STREET - CINCINNATI, OHIO
New York . Chicago . Atlanta . Los Angeles
FIRST OF THE PENNSYLVANIA OILS



"Shall I tear them both up?"

duction would be approximately the same as during the first half of the year. Production schedules for succeeding months are now being studied and should be published soon. If materials are available, there should be no acute parts shortage for some months to come.

Sudden decision by servicemen to buy all the parts, equipment, and tools in sight would perhaps create a grave scarcity and would be contrary to the government's appeal for conservation of all war-useful materials. This does not mean, however, that servicemen are wise to deny themselves the assistance of such equipment and tools as have already been manufactured. Efficient operation during the emergency, as already pointed out, demands the use of every labor-saving device that can be obtained. Some shopping around may be necessary to obtain the needed tools and equipment, but the serviceman who plans to make the most of the opportunity presented by the inevitable increase in defense service will spare no time or effort to get them.

Galvin Named President By Radio Manufacturers

The board of directors of the Radio Manufacturers Association, meeting at the Roosevelt Hotel, New York, on Oct. 15, elected Paul V. Galvin, president of their association, to succeed the position vacated by James S. Knowlson who recently resigned to become Deputy Director of OPM Priorities Division.

Galvin, president of Motorola Radio, was formerly a vice-president of the RMA, and is present chairman of the association's important Set Division, and also chairman of the association's Priorities Committee.

ALWAYS FIRST!

-with The Good New Things!

ALL STEEL BODIES!

HYDRAULIC BRAKES!

FLOATING POWER!

SPITFIRE ENGINES!

TAILORING TO TASTE!

FLUID DRIVE!

**WITH PLYMOUTH—
COMPLETE
MARKET
COVERAGE!**

**REAL CO-OPERATION
—FROM A SOUND
AND EXPERIENCED
FACTORY PERSONNEL!**

**EVER-GROWING
PUBLIC
ACCEPTANCE!**

CHRYSLER and PLYMOUTH

NEWS

EFFICIENCY

LIKE a straight line, efficiency is the shortest distance between two points. Anything that happens to stand in the way must be eliminated. In the view of certain factions in the OPM, the production of new automobiles stands in the way of efficient war preparation.

It was not so many months ago that we were told a 20 per cent curtailment of production would be deep

enough. Later, it was discovered that steel was not so abundant as had been thought, and cuts of approximately 48 per cent were ordered for the 1942 model year. New car dealers had hardly recovered from the shock of this drastic curtailment when rumors began to trickle out of OPM that even this cut was not sufficient. Then came hints that 10 to 15 per cent more might be added to the cut, beginning with January. At last came the news; January production was slashed to 51 per cent of the January, 1941, total.

Severe as this blow is, it is slight compared with the reputed goal of

Stacy May, chief of the OPM Bureau of Research and Statistics, which is said to be an annual limit of 52,000 passenger cars. It is probably less disastrous to the retail automobile business than the recent ban on all building except that directly affecting national defense is to the building industry. Yet the cut in January new-car production is indicative of the dangers of relying upon new-car volume during the coming months. The way to survival lies along the service road.

ANTI-SCRATCH

"GLYCERINE FACTS," published by the Glycerine Producers Association, offers a simple method of removing scratches from glass.

A hard felt pad is dipped into a paste made of glycerine, water and rouge (iron oxide), and rubbed briskly back and forth over the scratched surface until the markings disappear. The paste can be washed away by flushing with water.

For deeper scratches, a coarser abrasive than rouge is required. Emery powder will often serve.

ICKES RELENTS

BY and large, the British have done a superlative job of building up goodwill in America. Since war became a probability several years ago, they have seldom moved without calculating the possible effect upon American public opinion, and, since the war began, London has fallen over itself to court and entertain American officials and even free-lance ambassadors.

It is somewhat surprising, therefore, to learn that Great Britain is returning 40 of the still secret number of tankers turned over to it to guarantee a sufficient supply of petroleum and petroleum products. The American people, of course, may be delighted by the removal of the threat of gasoline shortage, but the return of the tankers is certainly not designed to improve Anglo-American relations so far as Mr. Roosevelt's petroleum co-ordinator is concerned.

A few weeks ago, when it was announced that the British would return 10 to 15 tankers, and thus upset preparations for a gasoline shortage, Ickes may have been annoyed but he rose magnificently to the occasion. He announced that the repatriated tankers would be needed to haul molasses for making alcohol. But 40 tankers are another matter. There simply isn't enough molasses to keep that many tankers busy, so Ickes had to scrap all the plans for a gasoline shortage. The 7 o'clock curfew allocations, proposals for ration cards, and all the rest of laboriously wrought scheme went overboard. Ickes' cries of im-

(Continued on page 66)

EXTRA TOUGH!



LINK-BELT

SHAFTER

ROLLER BEARINGS

FOR FRONT WHEELS, DIFFERENTIALS AND REAR AXLES



Greater radial and thrust load capacity due to the exclusive concave-convex design of the rollers and raceways provides Link-Belt Roller Bearings with the extra strength so necessary in tough service. That's why the big fleet operators are replacing with this bearing—it means better performance and certain savings. Ask your Jobber for full details on Link-Belt Roller Bearings today! 6692

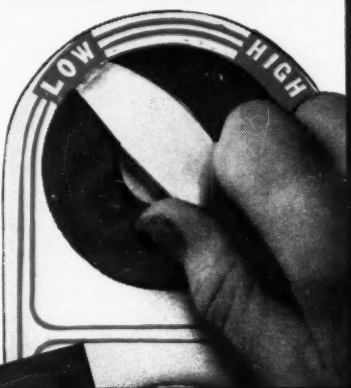
LINK-BELT COMPANY

519 N. Holmes Ave., Indianapolis, Ind. * Warehouses in all principal trading centers
Made by the makers of the famous Silverstreak Silent Timing Chain!

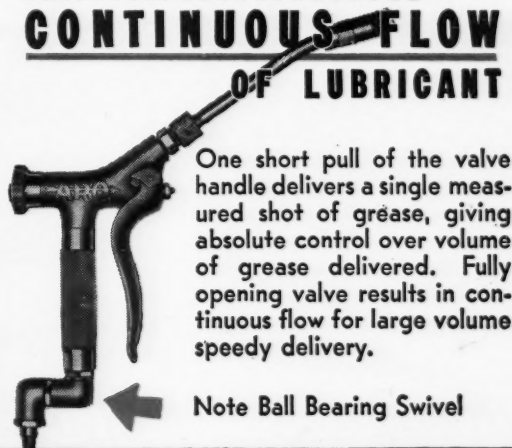
PROFIT BY ARO'S *Leadership* IN PERFORMANCE!

BOTH HIGH AND LOW GREASE PRESSURE AVAILABLE

Just turn the exclusive ARO HI-LO Pressure Control Valve to obtain instantly either LOW PRESSURE (for practical convenience and economy on 85% of chassis fittings you lubricate) ... or HIGH PRESSURE (for the "tough ones").



SINGLE SHOT OR CONTINUOUS FLOW OF LUBRICANT



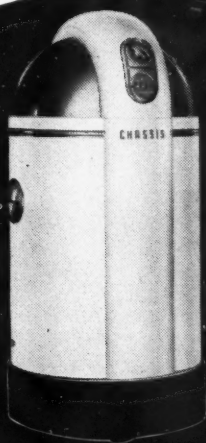
One short pull of the valve handle delivers a single measured shot of grease, giving absolute control over volume of grease delivered. Fully opening valve results in continuous flow for large volume speedy delivery.

Note Ball Bearing Swivel

The "man with the gun" in modern lubricating departments appreciates the host of advanced features found only in ARO Lubricating Equipment. Above are two typical examples.

All the way through ARO design and construction ... you'll find ahead-of-the-times advantages in Appearance, Quality and Performance. Point-by-point comparison with any other lubricating equipment shows why shrewd buyers today choose ARO! Profit by ARO's leadership in Performance, consult your ARO Jobber. The Aro Equipment Corporation, Bryan, Ohio, U.S.A.

Aro Leadership in style and beauty are shown in these two outstanding models ... the Super Deluxe and the Deluxe chassis lubricators.



ARO
LUBRICATING
EQUIPMENT

NEWS

(Continued from page 64)

pending disaster were drowned in a sea of petroleum.

It was irritating to be left without a single valid excuse for cracking down on anyone. No one lacking a passion for telling people off can realize just how irritated it must have made Ickes with the British.

But far more tragic was the promptness with which the returning tankers tumbled Ickes from the headlines he had occupied almost continu-

ously since last May. While the American motoring public and the automotive industry are stepping on the gas, without fear of shortage or restrictions, Ickes will be issuing permits to cattle men for grazing their herds on public lands and trying to keep his Indian charges on the reservation. You can't make page 1 with stuff like that.

TAX RELIEF

UP until now, Americans have soothed the sores left by shouldering an ever-mounting tax burden with the balm of belief that the Brit-



"For a small additional charge we will install an automobile on your radio."



THE 1941-42

Pyrene

TIRE CHAIN PLAN OFFERS YOU

MORE PRE-SEASON SALES

We've tested and proved a plan that really moves chains before snow. Now we're ready with sales helps, certificates, everything you need to sell chains without high-pressure in early-season. Ask Pyrene jobbers about this "Insurance Plan" that guarantees profits regardless of weather.

MORE MID-SEASON SALES

The remarkably effective weather forecast service created by Pyrene last year will be better and more localized this winter. Special frequent mailings slip into a larger easel-backed Display Forecaster, show monthly and immediate weather predictions right from the nation's leading expert. Ideal for planning sales drives, for checking stocks before storms, for attracting customers all season long.

MORE REPEAT SALES

The superb line of Pyrene, unexcelled by any maker, includes junior, standard, extra-heavy and nationally advertised Pyrene Doubleduty Bar-Reinforced chains. Easy-On Easy-Off lock. Rust-proofing into the metal. All repair parts, tools, etc., have the quality that brings back repeat customers.

Warning! Deliveries are uncertain! Order chains NOW from Pyrene jobber; get forecasts and Big Kit No. 127 of sales helps free.

Pyrene Manufacturing Company
NEWARK NEW JERSEY

ATLANTA
KANSAS CITY



CHICAGO
SAN FRANCISCO

ish are paying far more taxes. The British income tax is heavier than the American, so many in this country have jumped to the conclusion that Americans aren't badly off. A study completed recently by the Chamber of Commerce of the U. S. shattered this illusion.

Total tax collections in this country for the present fiscal year, including both federal and local levies, will total, the chamber estimates, \$22,500,000,000 or about 25 per cent of the national income. In Britain, similar collections will amount to \$7,900,000,000, or only 22 per cent of British income. America's per capita tax will be \$168. The British per capita tax will total \$165.

And, of course, there is a difference. Britain is waging an all-out war against Germany; America is technically at peace.

The situation, incidentally, has created an unparalleled opportunity for local politicians to improve their fortunes. In New York City, opponents of Mayor LaGuardia have proposed reducing the city sales tax from 2 to 1½ per cent, and contests in smaller communities here and there revolve about repeal of levies that were enacted as emergency measures. The burden of relief has been lightened by the upward swing in employment and continuance of emergency taxes designed to furnish relief funds is unjustified.

There is some difference between a politician's promise and his performance but any move to make state and local tax loads bearable deserves encouragement. In the rather dark taxation picture, the opportunity to effect economy in local government is the only immediate ray of light.

REMADE TIRES

DURING the present emergency, thousands of automobile owners are going to have tires recapped or retreaded for the first time. The result will be a booming demand for

(Continued on page 68)

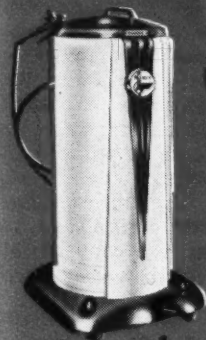
GUARANTEED WINTER PERFORMANCE NOW MORE IMPORTANT THAN EVER!

ALEMITE

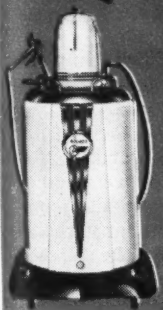
REG. U. S. PAT. OFF.

Guaranteed HIGH PRESSURE PUMP

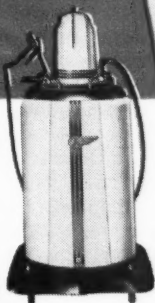
**Delivers Heavy Grease
EVEN WHEN FROZEN
IN A CAKE OF ICE!**



1



2



3



4

1. Super DeLuxe
2. DeLuxe
3. Master
4. Advance

**Specifications for
ALEMITE GUARANTEED PERFORMANCE**

Table of Performance:

Model No.	TYPE OF LUBRICANT	SAE GRADE	TEMPERATURE	DELIVERY PER HOUR	DELIVERY PER MINUTE
1 (Super DeLuxe)	Soft Pressure Gun Type	100 lb. Per sq. in.	50° F.	1000	16.7
		100 lb. Per sq. in.	20° F.	1000	16.7
		100 lb. Per sq. in.	0° F.	1000	16.7
		100 lb. Per sq. in.	-20° F.	1000	16.7
2 (DeLuxe)	Heavy Viscous Type	100 lb. Per sq. in.	50° F.	1000	16.7
		100 lb. Per sq. in.	20° F.	1000	16.7
		100 lb. Per sq. in.	0° F.	1000	16.7
		100 lb. Per sq. in.	-20° F.	1000	16.7
3 (Master)	Heavy Fibrous Type	100 lb. Per sq. in.	50° F.	1000	16.7
		100 lb. Per sq. in.	20° F.	1000	16.7
		100 lb. Per sq. in.	0° F.	1000	16.7
		100 lb. Per sq. in.	-20° F.	1000	16.7
4 (Advance)	Heavy Fibrous Type	100 lb. Per sq. in.	50° F.	1000	16.7
		100 lb. Per sq. in.	20° F.	1000	16.7
		100 lb. Per sq. in.	0° F.	1000	16.7
		100 lb. Per sq. in.	-20° F.	1000	16.7

Guarantee: The above Alemite Lubrication Pump and the parts thereof are guaranteed to be free of defects in materials and workmanship for the period of one year from date of sale. During the period of this warranty, repair or replacement of parts covered by this warranty shall be made free of charge. If the parts are not covered by this warranty, the cost of labor and material shall be charged to the user. The user shall be responsible for the proper use of the pump and for the proper selection of lubricant. The user shall be responsible for the proper use of the pump and for the proper selection of lubricant.

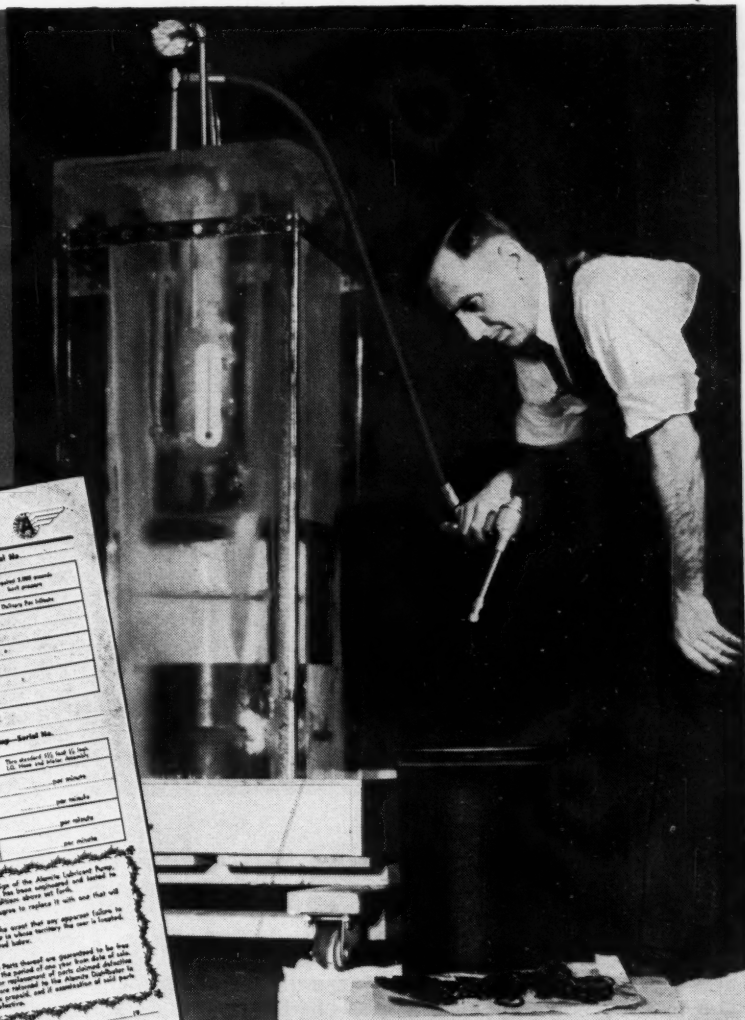
ALEMITE PERFORMANCE Guarantee

ALEMITE Warranty

The document shall be void only when counter-signed by the Alemite distributor.

SALESMAN'S SIGNATURE _____

DATE _____



Actual photograph of 1941 Alemite High Pressure Pump delivering heaviest type of fibrous lubricant, while pump and drum are frozen in 1300-lb. cake of ice.

PLENTY of car owners are now thinking of service and maintenance more seriously than ever before. Because they are vitally concerned with giving their present cars the best of attention, they'll demand dependable lubrication regardless of temperatures.

That's why it is important to you to go into the winter season with Alemite Guaranteed Lubrication Equipment—sold with a written guarantee that tells you exactly what performance you can expect. *Guaranteed winter performance is now more im-*

portant than ever!

Alemite's ability to outperform other lubrication equipment is due to (1) Alemite's Dyn-a-matic Primer, (2) Alemite's Aldura Valve, and (3) Alemite's Hose Miser—all exclusive—all patented. There is a size, capacity, and price to meet every requirement. All are offered on Alemite's convenient "Pay-As-You-Profit" Plan. Phone, wire, or write today!

STEWART-WARNER CORPORATION
1851 Diversey Parkway, Chicago, Illinois

ALEMITE

REG. U. S. PAT. OFF.



NEWS

(Continued from page 66)

this type of work. This does not mean that every shop with a mold is going to strike gold. That is going to be the lot only of the shops willing and able to produce top quality work.

At present, many owners would rather buy a cheap new tire than have their old tires recapped or retreaded. The choice is not based on knowledge of the comparative worth of the new and remade tire, but on hearsay concerning shoddy recapping

and retreading that admittedly has been turned out by some shops in the past.

In a recent release, the Rubber Manufacturers Association offers some hints to recapping and retreading shops that hope to attract and hold the new business now being created by the slash in new-tire production.

First of these hints is the advice to use the best grade of camelback. Second, but of equal importance, is to exercise great care in selection of casings for recapping or retreading. Third, is to do the work carefully and

accurately. Comebacks in the majority of cases can be traced to disregard of one or more of these common-sense rules.

A shop that considers going after recapping or retreading business with vigor is further advised to maintain a neat, orderly layout, both inside and out. Customers are peculiar people sometimes, and one of their peculiarities is to judge the quality of a shop's work by the appearance it presents.

Bearing Handbook

Of special interest to engineers and bearing designers is the new "Handbook of Sleeve Bearings," recently published by Federal-Mogul Corp., Detroit, Mich. The author is Albert B. Willi, chief engineer for Federal-Mogul.

Briefly, it discusses the effect of design, alloys and manufacturing methods upon sleeve bearing efficiency, and defines the field of application for each basic type of sleeve bearing. Its most valuable use will be for reference, a complete section being devoted to listing innumerable sizes and types of bearings and bushings for which major manufacturing tools are now available. This will make possible obtaining custom-built bearings for new or improved applications without the expense of new tooling.

Those who are directly concerned with sleeve bearing design and installation may receive a copy of this new handbook by writing the company.

Clarification

Unfortunately, in discussing the Federal order controlling the manufacture of replacement parts on page 17 and also on page 46 of the October issue of MOTOR AGE, the wording used led naturally to misinterpretation of the meaning it was intended to convey. In order to clear up any resulting misunderstanding on the part of our readers with respect to restrictions on the manufacture of replacement parts, we quote below directly from a recent release from the Office of Production Management:

"In line with the recent orders which now control the manufacture of passenger cars and light trucks, Limitation Order L-4 provides that a producer of spare parts for passenger cars and light trucks may make during the period from Sept. 15 to Dec. 31, 1941, 60 per cent of the number of parts sold by him for replacement purposes during the period from Jan. 1 to June 30, 1941. This means that during the last 14 weeks of this year he will be operating at the same high rate as during the first six months of 1941, when production had already jumped to approximately 130 per cent of the 1940 output.

"Replacement parts means only the
(Continued on page 70)



WHY do smart operators feature BEAR Headlight Tests at this Time of Year

• They know that after the summer's hard driving headlights need adjusting to be in good operating condition for Fall and Winter's dark days and wet pavements. They also know a good job of headlight testing leads to other profitable services—bulb changes, lens replacements, relay installations, new battery sales, etc.

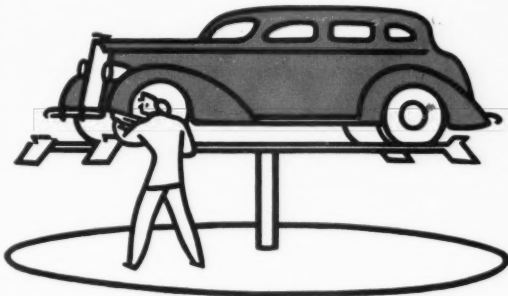
That's why they feature the Bear Headlight Tester—the tester that is officially approved—and that reproduces exact pattern of headlights on screen, as recommended by manufacturers. Has so many extra advantages—self-leveling devices—photo-electric cell to record exact light output—easier-to-read-dials—minimum space requirement. All enabling you to make more accurate test of any headlight, day or night—with less time and labor—and so make larger net profits! Get started making more money in headlight testing with Bear—the lowest priced Complete Headlight Tester! Send post card today for Free circular giving full details. Bear Mfg. Co. Rock Island, Illinois.

BEAR

"555" HEADLIGHT TESTER

**MODERN SERVICE METHODS
TEACH YOUR MEN —**

How to Sell Lubrication



There are two sound, proved ways to sell lubrication. 1st, to know the facts about lubrication itself. This sounds simple, but in an amazing number of cases, lack of this knowledge

loses business. We sincerely believe that no one can give your men more expert advice and training than the Socony-Vacuum Specialist. 2nd . . . yes, there is a second and very vital way to sell lubrication — in fact, to aid your entire business. But we'd like to talk this over with you personally. Won't you drop us a line?

QUICK FACTS ON "MODERN SERVICE METHODS":

- ① **UNIQUE TRAINING COURSE—** Everyone in your organization is trained in Modern Service Methods. This sales coaching program is conducted by trained Socony-Vacuum specialists. It includes instruction with movies, slide films, charts and service manuals.
- ② **YOUR MARKET IS CAREFULLY SURVEYED** to calculate the future growth of your business.
- ③ **YOUR PRESENT LAYOUT IS STUDIED —** We suggest improvements

in your equipment and in the arrangement of your establishment. We recommend the type and size lubricatorium your business will require.

- ④ **SALES PROMOTION —** We offer hard-hitting sales promotion pieces to push your service specials . . . bring new customers into your place.

SOCONY-VACUUM OIL CO., INC., and Affiliates—Magnolia Petroleum Company, General Petroleum Corporation of California.

SOCONY-VACUUM'S MODERN
SERVICE METHODS BRING

RESULTS LIKE THESE

TO CAR DEALERS

**"Lube Jobs Up
250% in
Three Years!"**



**SAYS
E. E. FORD**

**BARFORD
CHEVROLET CO.
ST. LOUIS, MO.**



MODERN SERVICE METHODS went to work 3 years ago for the Barford Chevrolet Co. Take a look at the results:

"Any time," writes Mr. E. E. Ford, "you can give lube jobs a 250% boost in three years — and attract additional profitable business to other departments — you're getting results."

"Your service plan has been of greater help to us in building this business than any other single thing!"

ADDRESS CAR DEALER DIVISION — SOCONY-VACUUM OIL CO., INC., 26 BROADWAY, N. Y. C.

Socony-Vacuum

MAKERS OF MOBILOIL AND MOBILGREASE

NEWS

(Continued from page 68)

functional parts (including components entering into such parts) used for the repair of light motor trucks or passenger automobiles; engine, clutch, transmission, propeller shaft, axles, brakes, wheels, hubs, drums, starting apparatus, spring suspension, brackets and shackles; also the exhaust, cooling, fuel and electrical systems, including generators, light, reflectors and batteries; also gages, speedometers, motors, fuses, flares, directional signals, rear view mirrors,

windshield wipers, control mechanism, steering apparatus, driving gears. Replacement parts do not include parts entering into the production or assembly of new light motor trucks or passenger automobiles."

Gets Fuse Order

An order for the manufacture of artillery fuses totaling \$1,570,000 has just been awarded to Philco Corp., it has been announced by James T. Buckley, president. This order supplements an earlier fuse order amounting to \$2,060,525 which the company expects to complete ahead of schedule.



New Sheldon Machine Co. plant

Sheldon Lathe Expands

The Sheldon Machine Co., Inc., builders of Sheldon precision lathes, arbor presses and machine vises, has moved into its modern new monitor type daylight plant just completed at 4240-58 Knox Ave., Chicago. Completely equipped with modern machinery, tools and plant equipment, this new plant has tripled Sheldon's lathe production.

Sept. Rubber Consumption Shows Increase Over 1940

September consumption of crude rubber by domestic rubber manufacturers was 53,655 long tons, according to statistics released today by the Rubber Manufacturers Association, Inc. Consumption during September was 3.1 per cent under August but was 2.3 per cent above September a year ago.

Gross imports for September totaled 81,743 long tons, according to the Department of Commerce. This represents a decrease of 23.3 per cent under August but is 3.5 per cent over September, 1940.

Total domestic stocks at the end of September, including government reserves, totaled 473,684 long tons. This is 6.2 per cent above Aug. 31 stocks, and 115 per cent over the stocks estimated for Sept. 30, 1940.

Chicago Pneumatic Gets Plane Parts Contract

A contract for the manufacture of 500 sets of hydraulic cylinders to be used on Martin bombers, type B26-B, for American defense has been placed with the Chicago Pneumatic Tool Co., New York, by the Glenn L. Martin Co., of Middle River, Md. Delivery of initial quantities will begin in 60 days.

A number of different units make up one set of cylinders employed on each of the 4000-hp. twin-engined Martin bombers. These cylinders, hydraulically operated by pressure pump, are built into the ships to actuate bomb bay doors, landing flaps, retractable nose and tail wheels, and other mechanisms.

Recently, the Chicago Pneumatic Tool Co. acquired a new plant of 90,000 sq. ft. at Garfield, N. J., expressly for the manufacture of hydraulic equipment for aircraft.

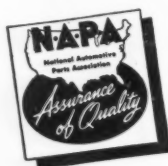
● Thousands of "first owners" are going to change their habits during the coming months. They're going to buy maintenance instead of a new car—and among other things they're going to buy a clutch overhaul.

Be ready to handle this business quickly, intelligently and profitably by becoming a Monmouth Clutch Specialist. It will tell you how to recognize clutch troubles (even the obscure ones)—what needs to be done—and how to do it.

Thousands of shops are operating under the Monmouth Clutch Specialist Plan, building real profits and customer satisfaction. The complete, understandable and up-to-the-minute Monmouth Clutch Specialist Manual was last year voted the Award of Merit by Motor Service readers as an outstanding piece of service literature.

Enroll now as a Monmouth Clutch Specialist. See your NAPA Jobber for details of this plan to get clutch service and handle it profitably—or write to us.

MONMOUTH PRODUCTS COMPANY, CLEVELAND, OHIO, U. S. A.

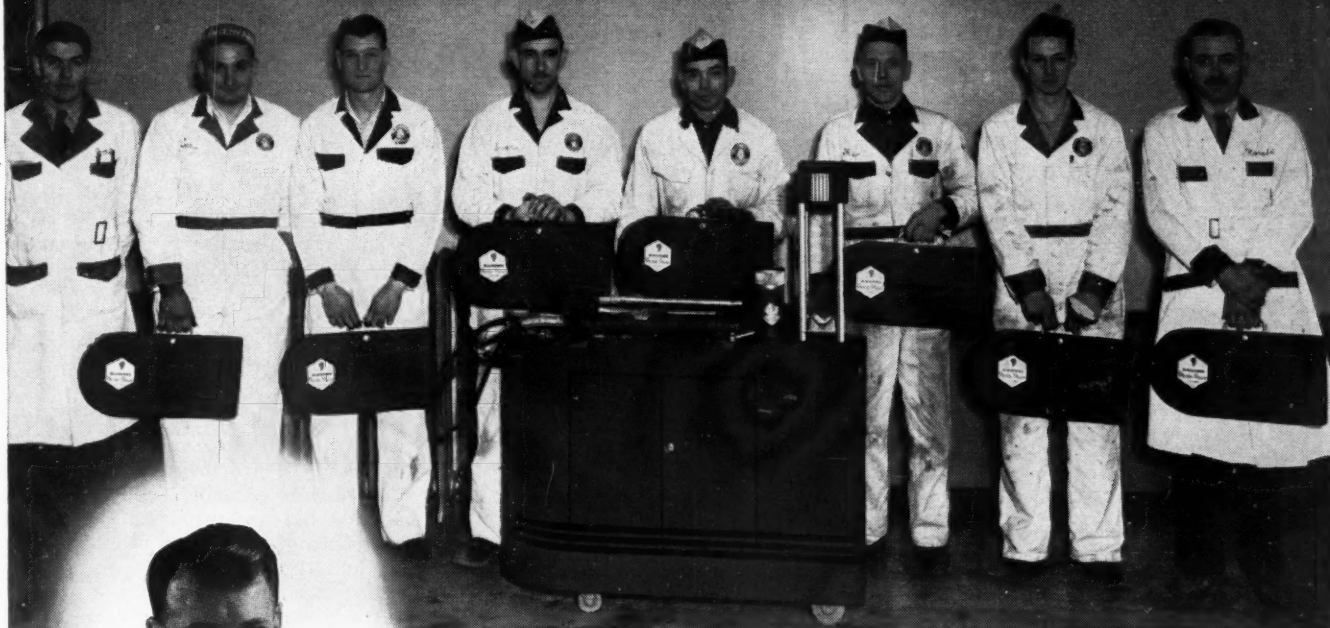


Master stocks of Monmouth Clutch Plates and Parts for all cars are maintained in NAPA Warehouses from coast to coast, assisting jobbers in every section of the country to give prompt service even on rarely called-for numbers.

ENGINE BEARINGS • CLUTCH PLATES
AND CLUTCH PARTS • KING BOLT SETS

**BOOST YOUR
PORTO-POWER PROFITS**

WITH A *Bantam Brigade*

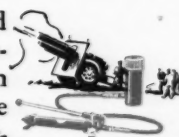


Seven BANTAMS in one shop! That's the way the Logan Oldsmobile Company, Portland, Ore., boosts its Porto-Power Profits and avoids "traffic jams" on its 10-ton and 20-ton Porto-Powers. Left to right are Joe H. Star and his Bantam Brigade, mechanics Jim Olsen, Larry Dueber, Iver Albertson, Ernie Linquist, Alf Gaustad, Clyde Linquist and Harold Knighton each holding his own SA-10 Bantam Porto-Power



Back up your 10-ton Porto-Power "battle-wagon" with 20-ton Porto-Power "heavy artillery" and Bantam Porto-Power "rapid-fire" equipment. That's the way you cash in on today's emergency demands for service. Because of drastic cuts in auto production, more cars will need service than ever before.

BANTAM PORTO-POWER gives you a low-priced light-weight hydraulic tool to handle scores of rebuilding, reconditioning and service jobs. Bantam weighs only 8½ lbs. is so compact it gets in where larger units can't. New assortment of exclusive attachments makes Bantam a top-notch profit booster to handle 90% of all body jobs, as well as a big range of every day service work. There's nothing on the market to equal Bantam for low cost, or big range of uses.



Order from your Jobber Salesman TODAY!

A Product of **BLACKHAWK MFG. CO.**
DEPARTMENT P6111 • MILWAUKEE, WISCONSIN

THE
"All-American" ★
LINE-UP for
AUTOMOTIVE SERVICE
HYDRAULIC HAND
JACKS • HYDRAULIC
SERVICE JACKS •
PORTO-POWER
WRENCHES ★

BLACKHAWK

Compressor Makers

Form National Body

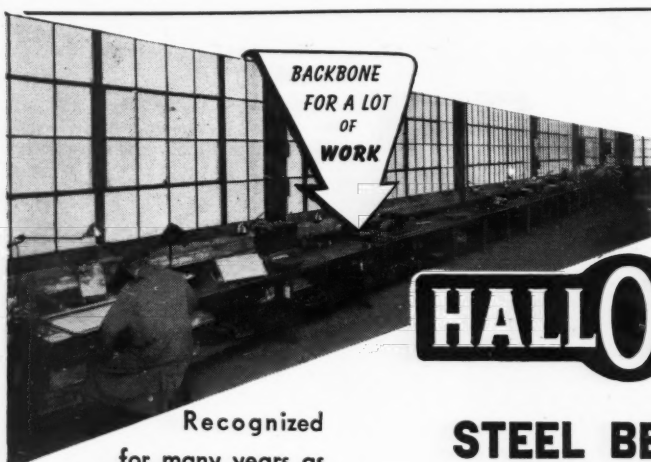
Most of the principal air compressor manufacturers operating in the small compressor (automotive) field have formed a new association. The first meeting was held at White Sulphur Springs on June 12 and 13, at the Greenbrier Hotel; the second meeting on Sept. 25 and 26 at Dearborn Inn, Dearborn, Mich.

The following compressor manufacturing members were present:

The American Brake Shoe and Foundry Co. (Kellogg Division);

The Auto Compressor Co.; Brunner Manufacturing Co.; Curtis Pneumatic Machinery Co.; The DeVilbiss Co.; Ingersoll-Rand Co.; Manley Manufacturing Division (American Chain & Cable Company, Inc.); Modern Equipment Corp.; Quincy Compressor Co.; Service Station Equipment Co.; United States Air Compressor Co.; Wayne Pump and Compressor Corp.; Weaver Manufacturing Co.; Worthington Pump and Machinery Corp.

General offices have been opened in the Clark Building at Pittsburgh, Pa., with R. Kennedy Hanson as secretary.



Recognized for many years as the standard in bench equipment, the "Hallowell" line incorporates all the features to meet today's requirements.

Such advantages as smooth tops of steel, laminated wood or Masonite . . . lasting rigidity without bolting to the floor . . . extra sturdy construction throughout . . . interchangeability for quick and comprehensive re-arrangement of benching—are available in each of the 1,367 styles and models in the "Hallowell" line.

These prefabricated benches are THE answer to quick setup for sudden expansion demands . . . the answer to permanent requirements wherever there's work to be done. Details are yours free on request. Write—

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA. BOX 561

BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

HALLOWELL

STEEL BENCHES

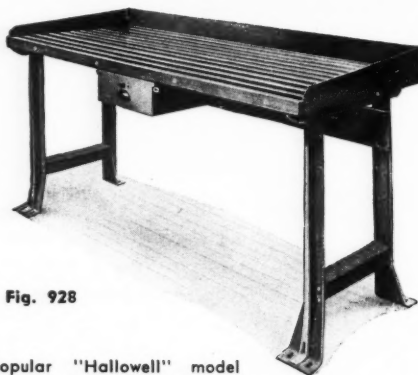


Fig. 928

A popular "Hallowell" model having an all laminated wood top. Drawer is extra. Pat'd. and Pat's. Pending.



"You know Murdock, I don't like the looks of this."

Hanson has opened an office at the Wardman Park Hotel in Washington for the purpose of assisting air compressor manufacturers in their priority problems and also to see that the industry is properly represented on the various committees dealing with present defense problems. Naturally, the place of the distributor or jobber in the national picture is going to be vigorously presented with a view to getting enough materials to supply the jobbers' needs during the emergency.

Other objects of the Institute are to standardize on sizes and numbers, cut down on the ever-increasing tendency to add special numbers and in other ways to operate so the jobber or distributor will be benefited.

The officers and directors are:

President, W. H. Wheeler, Worthington Pump and Machinery Corp.

Vice-president, R. A. Guyer, The DeVilbiss Co.

Treasurer, J. M. Wells, Ingersoll-Rand Co.

Executive Committee: J. M. Wells, Ingersoll-Rand Co.; B. J. Scholl, Brunner Manufacturing Co.; J. F. Weller, The American Brake Shoe and Foundry Co. (Kellogg Division).

Opens New Plant

The opening of a new plant at El Monte, Cal., signalizes the expansion of Littelfuse, Inc., Chicago concern internationally known manufacturer of small electrical fuses and fuse mountings for instruments, aircraft, radio, etc. The California plant supplements the Littelfuse factory at 4757 Ravenswood Ave., Chicago, excess demands on which have made necessary a large increase in production facilities as rapidly as possible.

**IT'S A SIGN
OF GOOD
BUSINESS**



**The Genuine Ford Parts Sign Is
An Assurance Of Quality Materials**

RIGHT! This sign brings 'em in . . . and it brings 'em back for more of the same kind of service you are able to give them.

When you display the Genuine Ford Parts sign, you give assurance to owners of Ford cars and trucks that the replacement parts you use are made of the same high-quality materials and to the same high standards of precision as the original parts in their cars and trucks. These owners represent a huge and active market. Moreover, they know and appreciate Ford quality and workmanship.

Remember . . . you can depend on Genuine Ford Parts to fit properly. That saves you time. And you'll cash in extra profits, too, because of better satisfied customers.

Ask your Ford Parts Distributor how you can get a Genuine Ford Parts sign for your shop.

**INSIST ON GENUINE
FORD PARTS and get—**

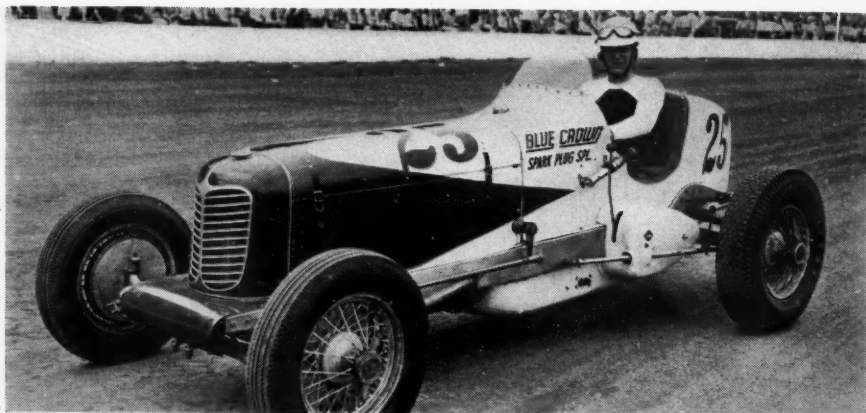
- Ford quality materials
- Ford precision manufacturing
- Ford careful inspections
- Ford rigid tests

**— and more
SATISFIED CUSTOMERS!**

FORD MOTOR COMPANY

**GENERAL SALES DEPARTMENT
DEARBORN, MICHIGAN**

Tony Bettenhausen, said to be the youngest driver in AAA sponsored races, in the Blue Crown Spark Plug Special with which he took sixth place at Milwaukee and second in the Syracuse championship event. In the latter race, he finished only eight seconds behind Rex Mays. Last month, Bettenhausen was leading in seasonal point standing for midget cars and in dirt-track racing in the Midwest.



RAISE IN PRICE

ON

WARNER COOLING SYSTEM PRODUCTS

Possibly you have already been informed by your supplier that prices on Warner Cooling System products have been raised to:

WARNER LIQUID SOLDER.....Retail Price NOW \$.55

Permanent Cooling System repairing . . .
the standard for over 20 years.

WARNER RADIATOR CLEANER.....Retail Price NOW \$.69

Thorough Cooling System cleaning . . .
SAFE for automobile cooling systems
because it is scientifically prepared.

WARNER COOLING SYSTEM PROTECTOR.....Retail Price NOW \$.55

Positive Cooling System protection
against rust and corrosion.

**THESE PRICES ARE
NOW IN EFFECT
EVERYWHERE!**

★

WARNER-PATTERSON COMPANY

920 So. Michigan Ave.
Chicago • Illinois

As an indirect aid to national defense the United States government is urging motorists to take care of their present automobiles. We subscribe to this policy. But more, Warner-Patterson products for the cooling system help keep cars in condition, insuring longer life. Warner cooling system products prevent excessive heat which in turn conserves gas and oil, and prevents unnecessary wear caused by overheating.

Niehoff and Co. Opens

New Factory Addition

Over 400 jobbers, jobbers' salesmen, service station men and employees dined and danced in the new addition to the Niehoff factory in Chicago, to celebrate the grand opening. Parts men came in from all the neighboring States of Wisconsin, Iowa, Kansas, Indiana, Minnesota and Michigan.

The program featured electric organ playing and the lilting dance melodies from a favorite Chicago orchestra.

The whole crowd was easily entertained in the confines of the new large addition, which was finished just six hours before the party started. Complete with fluorescent lighting and modern ventilation, the addition will house new equipment adding to the already large productive capacity of the plant. Besides producing Niehoff ignition, brake and magneto parts, C. E. Niehoff & Co. is becoming increasingly engaged in the production of precision defense work.

Defense Activities

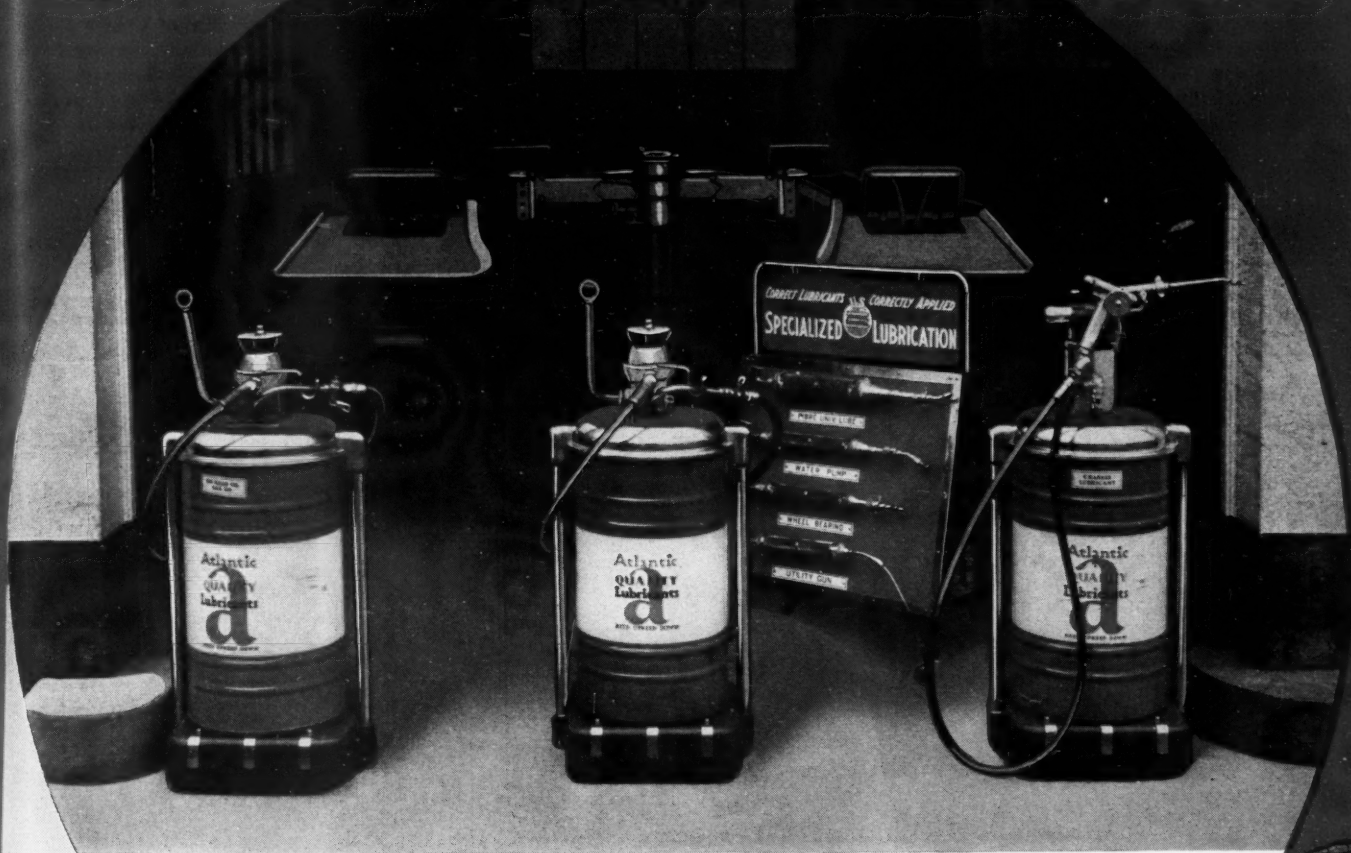
Are Described by NSPA

Accomplishments of the National Standard Parts Association in the field of national defense are outlined in a new printed release from the association's headquarters in Detroit. Appropriately titled "The Record" this summary of 1941 activities deals briefly with various industry defense projects successfully completed by NSPA earlier in the year and reviews new services in connection with other phases of wholesaling and manufacturing.

Nearly half the text of the folder is devoted to industry defense activities in which the national wholesaler-manufacturer organization has played a leading role. The remaining paragraphs are devoted largely to management and merchandising activities.

Defense efforts, as described under nine paragraph headings, include establishment of the NSPA Washington office, special defense bulletin service, industry conferences, reference material prepared for the OPM, and various group efforts by officers and committeemen.

U.S. *Brand Display* LUBRICATORS



SPOTLIGHT AND SELL *Your brand* OF LUBRICANT

U. S. Display lubricating units, equipped with the famous patented Jack-in-the-box pump and cover elevator, merchandises your brand of lubricants and dispenses them in the most economical and easiest way. • U. S. portable, brand display, air operated chassis lubricating unit operates by simply attaching quick coupling on air hose to base of unit. To change drums, the cover, pump hose, control nozzle and suction pump is automatically raised by air, up out of the way while a new drum is put in its place. U.S. Portable air operated lubricating units pay for themselves in no time.



THE UNITED STATES AIR COMPRESSOR COMPANY · CLEVELAND, OHIO
AIR COMPRESSORS • GREASING EQUIPMENT • HYDRAULIC LIFTS

Mays Again Captures National Racing Title

When the 100-mile National Championship Race at Syracuse, N. Y., and the famous Pike's Peak Hill Climb at Colorado Springs, rang down the curtain of the 1941 AAA official racing season, the records revealed two former racing champions still in full possession of their laurels.

Rex Mays 1940 AAA National Champion Driver, successfully defended his title in 1941 and Louis Unser's record-breaking dash up the tortuous Pike's Peak Course, marked

his sixth victory in this annual up-hill speed classic. Every 1941 championship race and official hill climbing event was won on Firestone Tires.

Mays started his bid for championship honors when he placed second in this year's Indianapolis 500-mile race, thereby chalking up 825 points toward the National crown. He then made a clean sweep of the championship races that followed, first winning the 100-mile AAA race in Milwaukee. This clinched the championship for him, but he continued to pile up points by taking first place in the Syracuse 100-mile final event of the season,

thereby duplicating his 1940 record when he won both of these races. With the exception of the Indianapolis 500-mile race, Mays has won every National championship contest that has been staged in the last two years.

On the same day that Mays became 1941 Champion, Louis Unser set a new record in the annual Pike's Peak hill climb. His time up the perilous mountain course was 15 minutes, 35.2 seconds. This bettered his own previous record of 1939 by 4 seconds.

Davis Chosen to Head Brake Lining Association

The Brake Lining Manufacturers' Association, Inc., at its annual meeting late in September, elected the following officers for the coming year: President, R. B. Davis, Raybestos Division of Raybestos - Manhattan, Inc.

First vice-president, T. L. Gatke, Gatke Corp.

Second vice-president, P. B. Hoffman, The American Brake Shoe and Foundry Co.

Treasurer, J. S. Doyle, Johns-Manville Corp.

Secretary and assistant treasurer, H. G. Duschek.

Members of the executive committee in addition to the president, vice-presidents and treasurer are:

W. E. Harvey, Thermoid Co.; G. M. Williams, Russell Manufacturing Co.; M. M. Monroe, Inland Manufacturing Division, General Motors Corp.; J. W. Crawford, Firestone Tire and Rubber Co.; F. I. Marshall, Marshall-Eclipse Division, Bendix Aviation Corp.

Members of the association not represented among the officers and executive committeemen are Asbestor Manufacturing; Ferodo and Asbestos, Inc.; Fibre and Metal Products, Inc.; Lasco Brake Productive Corp., Ltd.; Manhattan Rubber Manufacturing Division of Raybestos - Manhattan, Inc.; Rex Hide, Inc.; Scandinavia Belting Co.; E. M. Smith Co.; Union Asbestos and Rubber Co.; United States Asbestos Division of Raybestos-Manhattan, Inc.; S. K. Wellman Co.; World Bestos Corp.

Heads Globe Industrial Division

C. E. Weaver has been named manager of Globe Hoist Company's Industrial Division, according to an announcement made by F. W. Swanson, president of the firm. Weaver will manage engineering as well as sale of Globe's line of hydraulic and mechanical lifts and elevators at both the Philadelphia and the Des Moines plants of the organization. "Red" Weaver is widely known throughout the automotive and industrial field as well as in the marketing division of the oil industry.



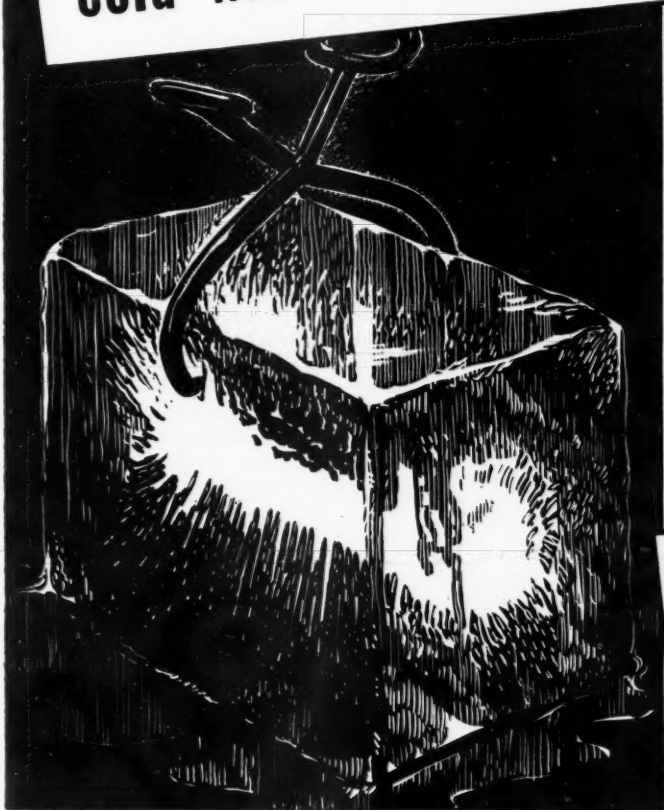
Your repair shop in 1942 can be more profitable than it has ever been . . . if you get set to take advantage of the unusual conditions created by National Defense. New cars will be scarce! Old cars will need complete reconditioning to keep them rolling. HYPRESSURE JENNY can make money for you in 3 ways in this new market!

1. Sell motor and chassis cleaning jobs with washes and lubes. A "like new" engine cleaning brings \$1.50 to \$3.00—takes only 10 to 15 minutes. Owners buy readily—they know their cars may have to last a long time, now!
2. Get \$15 to \$50 more for used cars (an established fact!) by spic-and-span JENNY cleaning before showing. Moves 'em faster, too!
3. Earn up to 40¢ more out of each repair dollar! JENNY cleaning before repairs saves 15 to 25 minutes of mechanic's time usually lost fighting dirt and grease. Statistics prove it!

Get ready for a profitable repair year. Learn how to wring extra dollars out of every job. Write today for information about The Hypressure Jenny way to profits.

HYPRESSURE JENNY DIVISION
HOMESTEAD VALVE MFG. CO.
P. O. BOX 95 CORAOPOLIS, PA.

IT FEELS LIKE THIS
inside any engine on a
cold winter morning...



BUT... here's how it
feels a moment later —
after "warming up"

Plenty of oils on the market today will flow quickly at low temperatures, making it easy to start the engine.

But it's another thing to combine easy-starting with resistance to deterioration in a red-hot engine, warmed-up and going places.

That's where Wolf's Head shines. It's the double-duty oil that gives positive cold-weather protection. It's so good that Wolf's Head guarantees the car-buyer against repair bills on lubricated parts during the first 30,000 miles!

Get the benefit of the Wolf's Head Guarantee Plan for your customers and yourself. It will help you close new car sales. It will help you bring customers back for regular service—and regular service is more vital today than ever before. Write today to Wolf's Head Oil Refining Co., Oil City, Pa., or New York, N. Y.

WOLF'S HEAD
Winter
MOTOR OIL AND LUBES



35¢ a quart

100% Pennsylvania—P.G.C.O.A. Permit No. 19

GOOD WRENCHES DO A GOOD TURN

By **RICHARD PICARD**

Advertising Agency for
J. H. Williams & Co.

WHEN I wander through the hardware department of the five and ten, I marvel at the array of tools one can buy for very little money. Some are good values. Others just appear to be. The wrenches look so well-finished, so like expensive ones, that I often wonder how many people believe they are actually buying a bargain. One doesn't expect experienced mechanics and machinists to be fooled by appearances, yet, with such a spread in price, it wouldn't surprise me if occasionally they, too, are constrained to take a chance. Rather than denounce their weaknesses and extol the virtues of the better-grade types, I am going to enumerate a few of the essentials in buying "wrenches on which you depend to do you a good turn." With these in mind, I doubt if anyone would want to invest in cheap models.

First there's the matter of the proper size and style. To do a job quickly and efficiently, you must have the correct tool. High class brands are made in hundreds of styles and sizes to suit all kinds of work. Cheap, unbranded

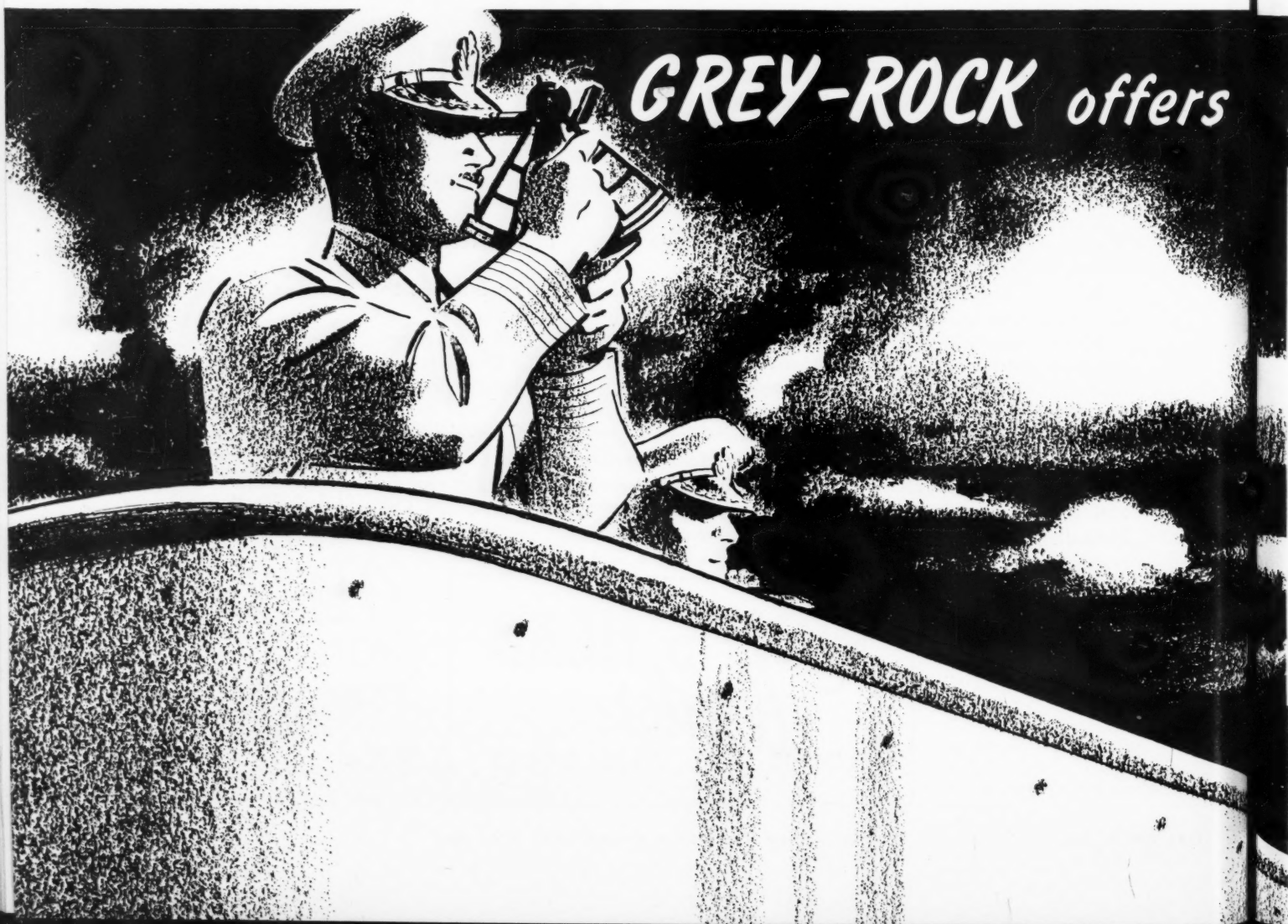
ones are made only in limited assortments. That means you will probably not find exactly what you need and will take an additional chance on being able to use something close to it.

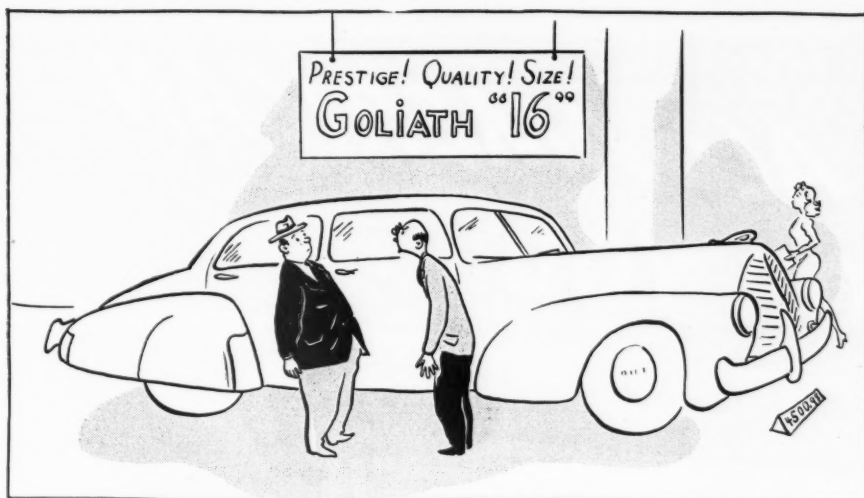
As every mechanic knows, the material used in the construction of the wrench is the main factor in determining whether or not it will last. In the case of open-end patterns, chrome alloy types are indestructible in regular service. Besides the finish, the chief advantage of this material is its thinness for work in close quarters. Where finish is not considered important and slight additional thickness is not a handicap, carbon steel models are amply strong and much less expensive. Stamped and cast wrenches are practically worthless for any kind of hard service. In the case of sockets and handles, chrome-alloy is most desirable, and accuracy of machining essential.

Fit is naturally of the utmost importance. Jaws must hug the nut firmly throughout their length. And, of course, they must not spread. Even

at a cost of a few pennies, a tool is a bad investment if you can use it only once or twice. Balance may not seem important, but a head that's too heavy for the handle will require almost twice the effort to turn. Then there's the question of the thickness of the head in relation to the nut. An improperly proportioned head will slip off the work and damage the nut, even if the opening is the correct size. Consider the depth of the opening and the angle of the head. When so designed, an open-end wrench can turn a nut in an arc as short as 15 degrees. The length of the tool, too, has a lot to do with its efficiency on the particular job in hand.

Construction of the handle makes a big difference. It must be long and hefty enough for leverage, and with a grip so comfortable that the user can exert his utmost pulling power when necessary. One of the big items in design is the elimination of surplus material. Just to look at a quality wrench, one might not think that its shape is the result of years of improvements based on technical study and practical experience, yet that is exactly the case. It is so shaped that every ounce of material is placed where it will do the most good, with no excess. Even the markings have had a great deal of thought. Sizes are





"Somebody's been ribbing you. We absolutely do not sell concrete mixers."

shown clearly and where they can be easily read and understood. Chrome-finished wrenches not only look and feel nice, but they are easy to keep clean. And, last but not least, a guarantee by a concern large enough to back up that guarantee is real investment insurance.

The ability of the manufacturer to select the proper tools for his various sets often saves the buyer lots of money in unnecessary extras. Each

assortment should be designed for a certain type of work or a particular job and contain all the items necessary for that assignment. Thoughtful mechanics will purchase sets whose construction permits them to add wrenches, sockets and handles as they are needed or introduced. Thus each new set is merely a foundation upon which they can build their complete wrench equipment.

In the purchase of sets which are

housed in steel boxes or chests, the construction of the containers can make a big difference to your pocket-book. Aside from convenient storage, they often provide a means for safeguarding tools. Boxes should be made of high grade steel with welded edges. The edges must carefully overlap, must be securely welded throughout their entire length, and must be rolled so as to prevent severe scratches and sometimes worse. If not, they soon become broken and your tools will be scattered loosely in your drawer or bag, and, before you know it, one or two are lost and have to be replaced. Or else the right wrench is so hard to find that you just use whatever one is handy and that slows you up until you finally have to stop and hunt for the one you want. If the hinges are not strong enough, or the lock and hasp are inferior, your protection is gone and you will soon find that someone has "borrowed" a few of your best wrenches. Large chests should have rollers for easy moving to worksite.

These are just a few of the things to remember the next time you are tempted by cheap wrenches. What applies to wrenches is equally true of other equipment. After a little experience I believe you will come to the conclusion that cheap tools are expensive.

A STRAIGHT COURSE FOR A TROUBLED YEAR

Steer your business carefully through '42. Lay your course directly towards **HIGHWAY SAFETY**, and a defense-busy nation will pay you well to guard its hard-to-get cars, its truck-loads of necessary materials, and its crowded bus-loads of workers. With motor vehicles operating at the very limit of capacity, **BRAKE SERVICE** will offer enormous opportunity.

The cars you service may be older models, but Grey-Rock will help you keep them road-worthy by continuing to deliver only the very finest replacements. Grey-Rock will make no compromise. Its linings will remain high in quality, carefully designed for top performance on all vehicles, thereby protecting your workmanship and conserving your time. Prices will remain as low as is permitted by such quality.

You may be forced to employ less highly skilled mechanics, but Grey-Rock will extend its guidance to their workmanship—both with National Safety Council's Standard Servicing Schedule and the outstanding Grey-Rock Engineers' Manual of Servicing and Relining Methods. No company has ever offered such authoritative assistance to the brake mechanic.

Steer your course by Grey-Rock in 1942, and motoring America will reward you in a troubled year.

Grey-Rock

BALANCED BRAKSETS

UNITED STATES ASBESTOS DIVISION of Raybestos-Manhattan, Inc., MANHEIM, PA.
BRAKE LININGS • CLUTCH FACINGS • FAN BELTS • AUTOMOTIVE HOSE • RELINING EQUIPMENT

LET THIS ALL AMERICAN SCORE FOR YOU . . .

Football and heavy fall traffic are here! That means a need for safe brakes . . . and an opportunity to sell more brake jobs.

Let Jim Asbestos carry the ball for you! Jim, you know, stands for all the things that make Johns-Manville Brake Lining so popular with your customers—and such a money-maker for you. Such advantages as safe, dependable stops. The tough, long-wearing qualities that appeal to today's economy-minded motorists.

And, too, Jim stands for "Brake Timing"—J-M's new merchandising program that's putting extra dollars into the pockets of alert dealers. So for a top score in brake-lining profits, let Jim Asbestos carry the ball. Just say "Johns-Manville" to your Jobber next time you order!



The Lifesaver of the Nation's Highways

JOHNS-MANVILLE BRAKE LINING

General Motors Sales in September Show Drop

September sales of General Motors cars and trucks in the United States and Canada, including export shipments, totaled 89,300 compared with 124,692 in September a year ago. Sales in August were 29,268. Sales for the first nine months of 1941 totaled 1,785,113 compared with 1,358,157 for the same nine months of 1940.

Sales to dealers in the United States totaled 81,169 in September compared with 116,031 in September a year ago. Sales in August were 19,690. Sales for the first nine months of 1941 totaled 1,633,912 compared with 1,249,883 for the same nine months of 1940.

Sales to consumers in the United States totaled 52,829 in September compared with 97,527 in September a year ago. Sales in August were 84,969. Sales for the first nine months of 1941 totaled 1,716,395 compared with 1,285,194 for the same nine months of 1940.

Machine Gun Production Reached in Year by AC

Attainment of its daily production goal for .50 caliber machine guns in just one year from the day it received its contract was announced Sept. 27 by George Mann, Jr., general manager of the AC Spark Plug Division of General Motors.

In September, 1940, when the government gave the "go ahead" to the AC division to manufacture Browning machine guns, not a machine, tool or piece of equipment for producing the weapon was in the AC factory, according to Mann. However, in the space of a few months the required equipment was installed and thousands of workers were being trained in the exacting tasks of small arms manufacture.

In March of this year, only six months after receiving the Ordnance Department's initial order, AC completed its first gun and the following month made its first shipment of several guns. In July the one-thousandth gun was produced just ten months ahead of schedule. A total of 2800 workers are now employed in the machine gun plant.

Although maximum production has been reached under the original schedule, it is now planned to step up daily output still further, Mann said. He pointed out that the original AC order totaling \$22,800,000 has been increased to \$47,600,000.

New Ford Firm

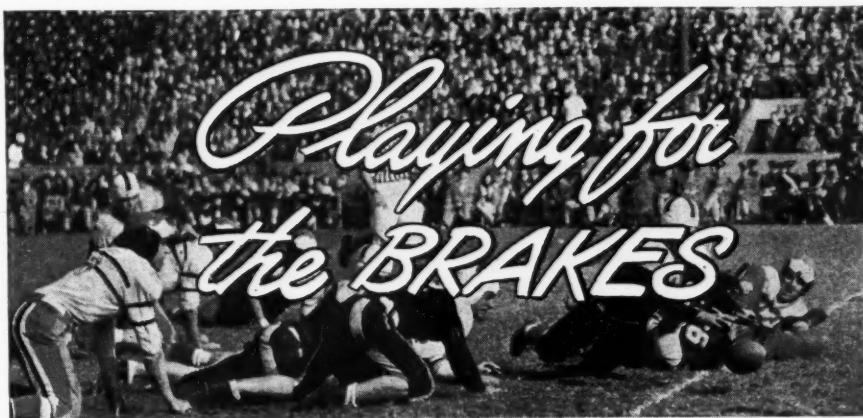
Headed by former sales executives of the Ford Motor Co., a new organization has been formed to handle sales and service for Lincoln and Mercury cars in the Highland Park, Mich., area.

It is the Park Motor Sales Co. which takes over the huge salesroom and service quarters occupied for many years by the Ford Motor Sales Co., as a factory retail branch, in the Woodward Avenue frontage of the Highland Park Ford plant. The new company, which replaces the retail branch, will serve also as distributor for Lincoln in Wayne County and for Mercury in the central and northwest sections of Detroit.

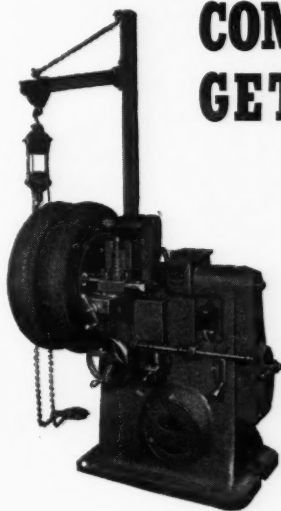
President is Walter E. Davison, Lincoln-Mercury sales manager of the Dearborn branch for the last six years.

Heads Car Division

Appointment of William Balderston, formerly vice-president in charge of the Car Manufacturers' Division of Philco Radio and Television Corp., to the position of vice-president of the Washington Division, has been announced by James T. Buckley, president. Leslie J. Woods, formerly chief engineer of the Car Manufacturers' Division, has been named general manager of the division. Woods will continue to make his headquarters in Detroit where Philco, since 1938, has maintained a special radio engineering laboratory.



COMPLETE BRAKE SERVICE GETS ALL THE JOBS!



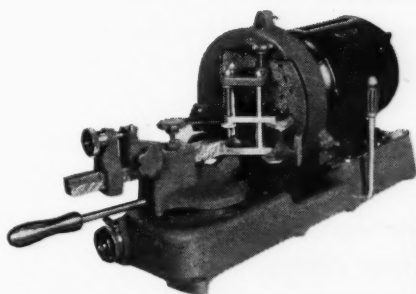
With brake service work far in the lead as the largest volume automotive service operation, jobbers and repair shops both are learning that this is the most profitable business to go after.

They're learning too that the best way to get more than their share of this work is to equip their shops for brake drum truing and lining grinding.

Eight out of ten brake relines—to be done properly—call for drum truing. So the shops that are equipped with a Lempco Brake Drum Lathe can keep this machine turning and grinding out profits day after day.

Similarly, by merchandising lining that is precision ground on a Lempco Brake Shoe Grinder, you steal a march on a competitive field. For precision ground lining insures a perfect reline and keeps your customers coming back again and again.

Ask your jobber today for complete details on Lempco's complete line of brake drum service equipment or write direct to Lempco.



LEMPCO PRODUCTS, Inc.
BEDFORD, OHIO

Please send me complete information on

- ☐ Brake Drum Lathes
☐ Brake Shoe Grinders

Name

Address

City State

DETROIT LETTER

By ED WARNER

EXPANSION of service facilities, to take advantage of the prospective increase in automobile repairs and upkeep, as well as to offset the limitation of new passenger car sales, is being pushed by the automotive industry. Most of the companies have maintained a policy of keeping dealers advised as to up-to-date methods of merchandising their service facilities but now this is being given especial emphasis. Clinics on selling service operations are being held on zone

and regional cities to prepare dealers for the cut of 50 per cent or more in their new car sales.

Many foresighted dealers expanded their service departments months ago when they saw the rapid growth of national defense industry and the increasing pressure for cutting the production of civilian goods like automobiles. One Detroit dealer rented an extra building exclusively for service operations when his original establishment outgrew his service business. Other dealers are devoting more and more space to service. With the curtailment in new passenger car business, more space and employees will

be available for strictly service operations. There will not be the necessity of preparing as many new cars for customers or of reconditioning as many used cars.

Heretofore, the factories have pushed retail sales, with service a somewhat secondary consideration. But, with the production quotas now frozen by OPM, based on 1938-40 output, there is not the competitive struggle for position in the industry. The factories stress the point that service will carry the dealers' overhead and make a fair-sized profit if this department is handled efficiently. This is an important factor when some sources in OPM forecast a cut greater than 50 per cent in future passenger car production due to the huge demands of the defense program upon essential raw materials such as steel, nickel, copper, rubber and aluminum.

In announcing the January passenger car production quotas, Leon Henderson, director of civilian supply for SPAB, said, "We are not fixing production quotas for January. We are merely establishing a maximum limit to which the manufacturers can produce—if they are successful in obtaining sufficient material."

Materials Banned

This last point was confirmed a few days later when the OPM issued an order forbidding the use of copper for automobile trim and body hardware, garage and repair equipment, horns, hub caps and heaters. Use of copper in radiators is reduced to 70 per cent of 1940 stocks used. The OPM also has under consideration an order to ban all brightwork containing nickel, aluminum or chrome, to be effective either Dec. 1 or Jan. 1. Chrome plating on bumpers and bumper guards also would be reduced. This order would have the effect of creating two series of 1942 models—those with much brightwork and a later series with painted or plastic trim replacing the chrome. It also would tend to speed sales of the early 1942 models for those buyers who like the brightwork.

Some factories have had to limit the ordering of replacement parts by dealers to forestall any shortage. Parts orders have been pro-rated, in many cases, on the basis of the previous year's business. Many dealers have laid in big inventories of parts to care for the anticipated growth in service business.

One company is encouraging its dealers to push service operations which require labor rather than replacement parts, such as tune-up and lubrication, in order to conserve on parts. Although in certain localities, where defense industry is centered, such as the Los Angeles area or the Connecticut Valley, there may be a shortage of mechanics, by and large there is enough of such skilled labor in the nation. The automobile fac-



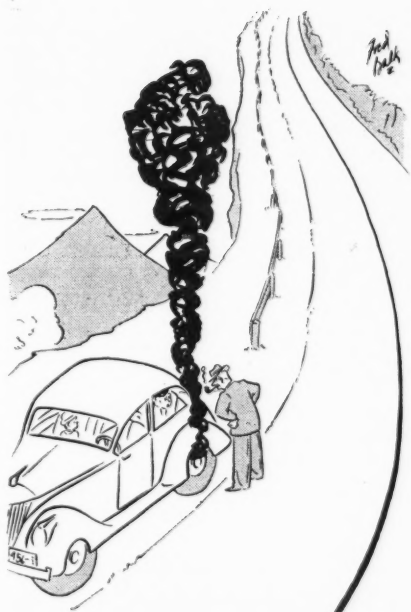
BIG GUNS, with power to punch a hole on a cross road clear across a mountain, need fine precision bearings. So do the small guns and the trucks, battleships and aircraft. Millions of fine bearings are wanted for defense.

The factories that make **CJB** Master Ball Bearings, Bower "Super-Finish" Roller Bearings, Ahlberg Ground Bearings are working at top speed to meet defense needs and to furnish you the bearings you need for the vital job of keeping the nation's cars and trucks rolling.



Ahlberg Bearing Company

Manufacturers of **CJB** Master Ball Bearings
3025 WEST 47TH STREET — CHICAGO — 30 WAREHOUSE BRANCHES
Out West at **PRECISION BEARINGS, INC.** Los Angeles



"Of course I smelled it, but I thought it was your pipe."

tories also are conducting training courses in key cities by factory representatives to offset any prospective shortage of mechanics.

There also is the prospect that curtailment of new car sales will make some dealer employees idle when the full impact of the cut is felt next spring. Testifying before the Tolan Committee hearings in Detroit recently, C. E. Wilson, president of General Motors, said that GM dealers employ approximately 200,000 employees. Of this number, about 50 per cent are employed on new car sales, including 40,000 salesmen and 60,000 on new car conditioning and service. Wilson stated that the 50 per cent production cut probably will put about 50,000 GM dealer employees out of jobs. As GM accounts for about half of the nation's new passenger car sales, the effects of curtailment on dealer employment can be roughly estimated. On the bright side from the employment viewpoint are the demands of the motorized and mechanized Army units for skilled technicians, the growing need for Air Corps mechanics and the expanding service operations of the dealers in comparison with new car business. With approximately 12,000,000 of the nation's 25,000,000 passenger cars more than five years old and 5,000,000 such vehicles on the road for 10 years or more, the opportunity for maintenance business appears almost limitless.

Production of passenger cars and trucks for October is estimated at 395,000 units. Although this is 23 per cent below October, 1940, when output of 514,374 vehicles set a record for the month, it is greater than any previous October since 1929. In the latter month 394,540 units were produced. Next January' quota of 204,898 passenger cars is the same as the

December quota, but is a drop of 51.1 per cent from January, 1940. It also is below January output for each of the last seven years except 1938, when the total was 155,505 passenger cars.

Retail sales in the U. S. for September totaled 172,674 units, according to the AMA, the smallest for any month since September, 1939, and a decline of 12 per cent from September, 1940. It also is the first time that retail sales have fallen below the same month of the previous year since October, 1938. September truck sales of 61,138 units, a 65 per cent gain over the same month of 1940, helped offset a 42 per cent drop in

passenger car sales, which totaled 111,536 vehicles.

General Motors September sales to consumers totaled 52,829 units, a decline of 46 per cent from the 97,527 vehicles that were sold in September, 1940. The fact that most GM dealers had disposed of their 1941 model stocks by August and the introduction of the 1942 models later than last year in several GM lines accounted for the low sales total. The almost complete cleanup of 1941 model stocks is indicated by the fact that dealer inventories were estimated at 17,393 vehicles on Sept. 1, the lowest in the last six years.



SISSIES do not ride with the tanks. Men and machines must be able to take it and come through with punch

power to do the job. Here is a place bearings can be proud to serve. And **(CJB)** Bearings are proud of the job they have been given to help make American built tanks a weapon worthy of Americans.

You will make no mistake when you place your trust in these "Master" Bearings. Their ability to do the job is proven on tough bearing assignments of every kind in peace and war.



Ahlberg Bearing Company

Manufacturers of **(CJB)** Master Ball Bearings

3028 WEST 47TH STREET — CHICAGO — 30 WAREHOUSE BRANCHES

Out West at **PRECISION BEARINGS, INC.** Los Angeles

NEW PRODUCTS

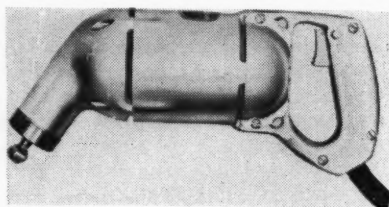
(Continued from page 41)

ing from 20 to 350 amps. A steady flow of current is supplied by eight coils. The new unit is portable, and is supplied with a complete set of cables, electrode holder, helmet, and an assortment of welding rods.

A new type electrode holder has also been developed, having special alloy metal jaws and a fully insulated tension spring. It is equipped with a ventilated handle to insure a cool working tool.

Angle Driver for Valve Seat Grinding

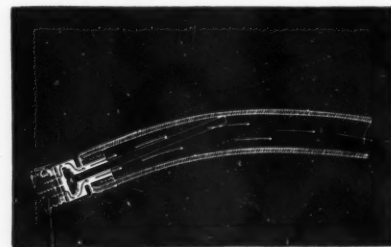
A standard model of the 55 deg. driver for valve seat reconditioning has been announced by Black &



Decker Mfg. Co., Towson, Md. This model is intended for use in the average garage where considerable medium and small valve seat reconditioning work is done. It weighs only 6½ lb., operates on 110 volt current, and is supplied complete with a 3-conductor cable and plug, trigger switch, hex ball spindle, and has a universal motor. The angle drive improves working clearances where the body, cowl or other obstacles might make the use of a straight drive difficult.

Water Nozzles

A line of water-and-air shut-off valves or nozzles for car washing and other types of cleaning is being offered by Davis & Murphy, 500 North Dearborn St., Chicago, Ill. Known as the Lonn shut-off valves, these nozzles provide the unique feature of



shutting off when the hose is dropped. To turn on, the weight of the hose, combined with the angle at which the end is bent, controls the amount of flow. These nozzles thread onto the end of the regular hose line, and are supplied in ¾ in. and 1 in. sizes.

Weatherstrip

The sponge rubber weatherstrip, identified as Dutch Brand Rub'r-Shim, made by Van Cleef Bros., Woodlawn Ave., Chicago, Ill., is supplied in three thicknesses and six widths. It is also available with tacky type adhesive on one side, or with dry type adhesive. Designed for use as weatherstripping on doors, around rear deck openings, cowl ventilators, engine hoods or headlight doors. It is supplied in 10-ft. rolls for consumer use, and 50-ft. rolls for shop use.

Penetrating Oil



Lubaid Co., Milwaukee, Wis., has announced a new penetrating oil known as Lubaid (SP) Speed Penetrant. It is said that the new product is especially suitable for shop use because of its fast-acting qualities. Sold in gallon, 5-gal., and 15-gal. drums.

GIVE YOUR HANDS

Wings



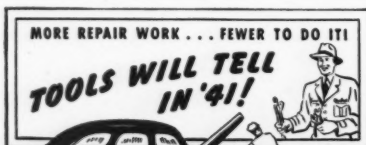
Contains every basic tool for hundreds of operations—151 units covering full range of socket wrench equipment from ⅜" to 1½" inc., in four sizes of handle drives: (Midget, ⅜" drive) (Ferret, ½" drive) (Master, ¾" drive) and (Heavy Duty, 1" drive).

★ ★ ★ ★ ★

THERE'S more than meets the eye in a genuine Snap-on! There's the positive, time-saving way a Snap-on wrench "snugs-on" to a nut, without slipping or chewing . . . the power you can feel in a Snap-on's bull-dog grip, in its safe, sure leverage . . . the nut turning speed that comes from correctly shaped wrench handles for every job . . . the deft way a Snap-on handles . . . the beautiful balance and finish that tell you, even in the dark, that here's a master tool for master workmen!

Twenty-two years of leadership in tool design and manufacture are behind every Snap-on tool you buy . . . your guarantee of lasting quality and satisfaction.

Speed is the order of the day . . . speed with accuracy! Give your hands wings . . . with Snap-on tools! See your Snap-on salesman, or write . . .



SNAP-ON TOOLS CORPORATION
8036-K 28th Avenue • Kenosha, Wisconsin

Snap-on SERVICE TOOLS
The Choice of Better Mechanics

For maximum brake performance...standardize

on...

Wagner BRAKE LININGS

No matter what your friction material needs may be—your Wagner jobber can take care of your requirements. The Wagner line includes CoMaX in rolls, sets, blocks, modified slabs and molded radius slab units. It also includes Standard Molded, Zinc-Wire Woven, Heavy-Duty Woven, Hydraulic Compressed, and Wagner "45"... Ask for details.



BOXED SETS—COMAX



UNBOXED SETS
WC-HDW-WZ-HC
SC-WW-SM



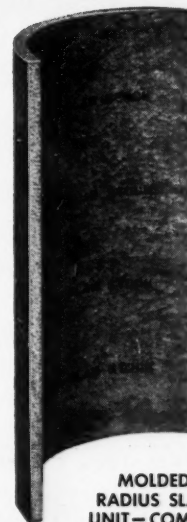
MOLDED
SEGMENTS
— COMAX



MODIFIED SLABS
COMAX



BLOCKS—COMAX



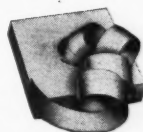
MOLDED
RADIUS SLAB
UNIT—COMAX



ROLLS—COMAX
HDW-ZW-HC
SM—"45"



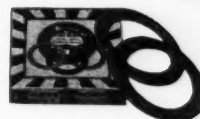
SHEET
STOCK
—HDW



SHIM STOCK



RIVETS



CLUTCH FACINGS
TYPES—M, W, V,
EV, EW, ST, STM—
(some ST and STM
Types are available
with radial grooves)



Mail THIS COUPON

New Wagner CoMaX Lining Catalog BU-128 gives specifications, etc., for passenger cars, trucks and buses. Every shop should have a copy. It's FREE. Tear out return coupon and mail today for your copy.

Wagner Electric Corporation

6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.

BRAKES • MOTORS • TRANSFORMERS • FANS

★ ★ ★ Automotive Parts Division ★ ★ ★
Wagner Electric Corporation
6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.

MA

Gentlemen: Please send me free copy of Catalog BU-128.

Name _____

Firm and Position _____

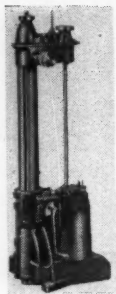
Address _____

City and State _____

I Buy My Lining From _____

New Boring Bar

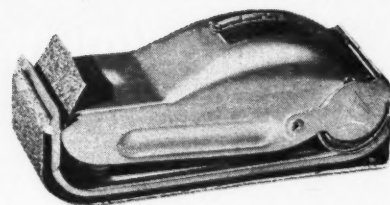
The new boring bar announced by Van Norman Machine Tool Co., 160 Wilbraham Ave., Springfield, Mass., takes the complete range of cylinders from 2.6 in. to 5.25 in. in diameter, and up to 14 in. deep. Yet the machine weighs only 115 lb. Like all seven models of the Per-Fect-O boring bars made by Van Norman, No. 965 has the four



Van Norman catspaws which are used not only for centering the bar but also as steady rests for the single tungsten carbide cutting tool as it goes down the cylinder wall.

Hand Sander

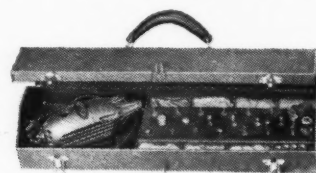
Behr-Manning Corp., Troy, N. Y., has developed a new-type hand sanding device to be known as the "Speed-wet Sander." It holds a length of abrasive paper or cloth tightly in position over a replaceable Neoprene pad. The sander has a magazine in which a reserve supply of abrasive paper or cloth is rolled so that, once it is loaded,



the workman may continue sanding for a considerable period of time before it is necessary to reload the unit. As the sanding surface of the paper becomes unsuitable for further use, a new section can be drawn into place by simply loosening a clamp bolt. Then the used portion can be torn off.

Grinder Kit

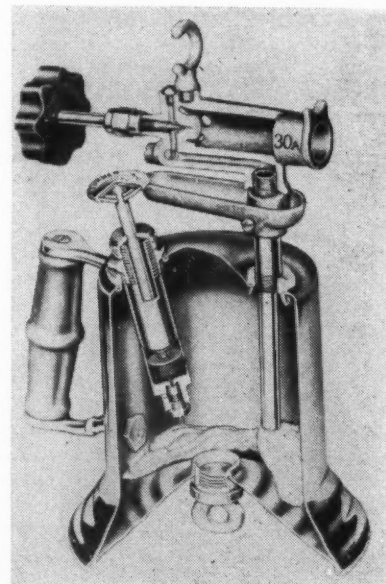
The latest addition to the line of power tools manufactured by the Dur Metal Products Co., 2649 N. Kildare Ave., Chicago, Ill., is the complete grinder kit illustrated. Included in



the kit are the heavy duty grinder, and an assortment of accessories, packed in a steel carrying case fitted with two automatic catches and a hinged hasp.

Turner Blow Torch

The latest addition to the line of blow torches made by the Turner Brass Works, Sycamore, Ill., is the new No. 30A. Designed especially for garage and service station use, this



new model incorporates oversize, quick-generating fuel passages, socket wrench hex feed-pipe inlet construction, with all connections safety-locked inside the tank.

**LET PENNZOIL HELP YOU
GET 1ST CRACK
AT FALL CHANGE-OVER BUSINESS!**

"Take it from an old-timer in the service business, what your business does for you this fall and winter depends on what you do for your business NOW. You'll get a bigger share by recruiting customers early. Be ready... order your PennZoil change-over material today."



**See how this plan makes it easy to
TELL 'EM ... SELL 'EM ... BRING 'EM BACK!**



TELLS 'EM ... With a series of attractive, personalized post cards, letters and folders you can pick from to take your sales story right into customers' and prospects' homes.



SELLS 'EM ... By backing up a top quality line of winter lubricants with even more sales ammunition—The Thermometer-Service Reminder—a brand-new sales weapon you

can use to get motorists in before competitors have a chance to sell them.



BRINGS 'EM BACK ... Your fall campaign is just a starting point. Once you get motorists in for change-over needs, you can use PennZoil's plan to hold their business—bring them back for future service needs—build all-year profits.

MAIL THIS COUPON TODAY!

THE PENNZOIL COMPANY, OIL CITY, PA.

Sure, I want a bigger share of Fall Change-over business. Send me complete details on how to:

- | | |
|--|--|
| <input type="checkbox"/> Organize The Campaign | <input type="checkbox"/> Hold New Business |
| <input type="checkbox"/> Recruit Customers Early | <input type="checkbox"/> Bring Inactive Customers Back |

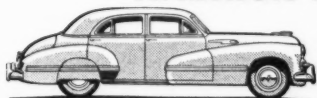
Name _____
Firm _____
Address _____
City & State _____



MA-6

YOU CAN ALWAYS COUNT ON *Oldsmobile!*

FOR THE KIND OF CARS AMERICA LIKES!



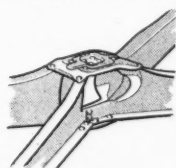
The motoring public has learned to expect great things from Oldsmobile — and again, Oldsmobile delivers the goods! For 1942, Oldsmobile offers the smooth, sleek-lined B-44 — Better looking, Better lasting and Better built than any Oldsmobile in Olds' 44-year history.

FOR TOP-QUALITY MATERIALS IN EVERY PART!



Quality gets priority in the manufacture of the new B-44. In every part, materials are the finest of their kind. It's Oldsmobile's quality standards, applied to every part, that contribute to the long and trouble-free life of the Oldsmobile car as a whole.

FOR SOLID, STURDY CONSTRUCTION THROUGHOUT!



Engineering and construction of the new B-44 likewise add to Oldsmobile's sturdiness and durability. To meet the needs of today's America, Oldsmobile has spared no effort to make the Olds B-44 a car that's built to last.

FOR THE VERY LATEST IN NEWEST FEATURES!



Oldsmobile's contributions to the motor car industry are world famous. Oldsmobile's original Hydra-Matic Drive now goes into its third year.

FOR APPEARANCE AND STYLE THAT ALWAYS CLICK!



Big, broad-shouldered and commanding, the Olds B-44 again leads the style parade. Its bold, distinctive, front-end treatment combines both beauty and utility.

FOR FACTORY POLICIES THAT ARE FAIR AND CONSIDERATE!



Oldsmobile dealers enjoy a franchise that is one of the fairest and most considerate in the entire industry — with liberal discounts and protected territories.

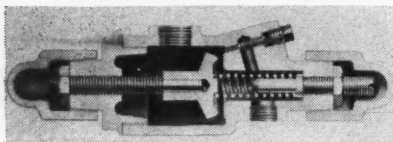
FOR FACTORY CO-OPERATION THAT CAN'T BE BEAT!



Furthermore, Oldsmobile dealers receive factory co-operation that is helpful in all departments of their businesses. If you're an Olds dealer, you know: "You can always count on Oldsmobile!"

Shut-Off Valve

An automatic shut-off valve for use in air, steam or gas lines, where flexible hose lines are used, has been announced by D. J. Murray Mfg. Co., Wausau, Wis. This valve is placed in



the line above the flexible hose. Immediately upon the hose breaking or

becoming disconnected, the valve automatically shuts off the air, steam or fluid supply.

Small Ratchet

The Plomb Tool Co., 2209 Santa Fe Ave., Los Angeles, Cal., has introduced a small ratchet for use with 1/4 in. square drive sockets. Known as No. 4751 Miniratch, this new reversible ratchet weighs only 1 3/4 oz.,



is 4 in. long and 5/8 in. across the head. It is made of special alloy steel for adequate strength, and is designed especially for use in electrical, carburetor, refrigeration, radio and other similar types of light work.

Brake Lining Set-up

A compact merchandising set-up of brake lining, including rolled lining and engineered sets, designed to service approximately 90 per cent of the passenger cars on the road today,



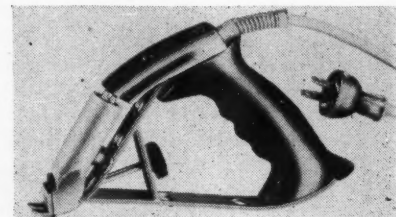
is being offered by The Russell Mfg. Co., Middletown, Conn., makers of Rusco brake lining. Included in the set-up is the display stand and a complete range of dealer sales helps, wall charts, signs, etc.

Tire Tools

To meet the demand for a tool to remove the tires from the safety rims used on the 1941 Chrysler-built cars, The Herbrand Corp., Fremont, Ohio, has introduced its No. 1122 Flash tire remover. This tool works on both sides of the wheel, on or off the car, and provides an easy method of lifting the tire bead over the rim of the wheel.

Tire Groover

A new style tire groover has been placed on the market by Timesaver Products Co., 31 South Desplaines St., Chicago, Ill. It is a push type, with a convenient handle and is equipped with a heating element so placed as

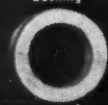


to remove the heat away from the hand. The Timesaver tire groover is made in two models, the Model A for passenger car tires and the Model L for truck and bus tires. Each model is supplied with 6 blades. List price of Model A is \$12.50, Model L, \$25.

RUBBER CANARIES



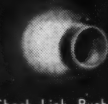
Shock Absorber Bushing



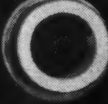
Tie Rod and Drag Link End Bushing



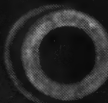
Steering Column Gear Shift Bearing



Shock Link Bushing



Pitman Arm Bushing



Shock Absorber Rubber Bushing

... have no relationship to the yellow, musical variety but are just plain, ordinary squeaks.

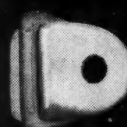
To cure this service station "head-ache" that grew worse as more and more rubber parts were added to cars, we originated and patented a lube that protects and lubricates the rubber.

Ask your oil supplier about his colloidal graphited rubber lube -- most of them distribute it under their own brand names . . . but labeled to indicate that it contains "dag" colloidal graphite.

ACHESON COLLOIDS CORPORATION
PORT HURON, MICHIGAN



"dag" is a registered trade mark of the Acheson Colloids Corporation



Stabilizer Bar Mounting



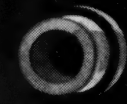
Shock Absorber Link Rubber



Steering Column Bushing



Muffler Bracket Grommet



Pitman Arm Bushing



Throttle and Choke Rod Ball Joint Insulator

Important Reminder

WEED TIRE CHAINS

Millions will travel to and from work in their cars this winter. Most of them realize that Weed Chains avert skidding accidents, save lives and protect cars. They know, too, that Weeds save gas by giving traction on snow and ice.

A Vital Necessity

Your customers will need Weed Chains this winter more than ever. Don't disappoint them. Better still, *remind your customers now* to be ready for ice and snow with Weed Regulars or Weed Americans.

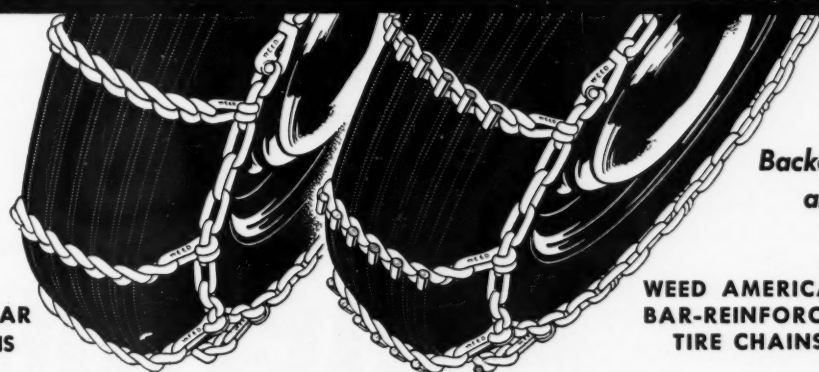
Sell Quality Chains—Weed Americans

Weed American Bar-Reinforced Tire Chains offer 4 features that car owners like:

1. Bar-Reinforcements on links give double the service.
2. Weedalloy—a stronger, tougher metal.
3. Patented Lever-Lock End Hooks—easy to use and positive fastening.
4. Side Chains welded and hardened to resist wear on curbs and ruts.

Weed Americans give more than double the mileage and thereby save steel. Weed Chains for the "Big 7 tire sizes" fit 93% of cars made in the last 8 years. This simplifies your stock problem—but be sure to order early enough from your Weed distributor.

AMERICAN CHAIN & CABLE COMPANY, INC., YORK, PA.

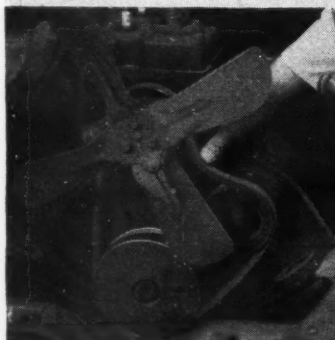


WEED REGULAR
TIRE CHAINS

WEED AMERICAN
BAR-REINFORCED
TIRE CHAINS

Backed by 40 years of research
and national advertising

This is what happens to an Ordinary Fan Belt ... **But**



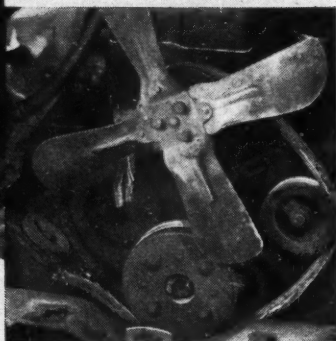
First it STRETCHES



Then it SLIPS



Then it WEARS



Then it FAILS

THE tremendous increase in the acceptance of Thermoid Fan Belts is the best evidence of the high performance standards made possible by the exclusive Thermoidized Pre-Stretching Process. Thermoid Fan Belts stop trouble *before* it starts because they are permanently pre-stretched.

Supporting this vastly improved performance, Thermoid has a complete merchandising program . . . a simplification of the line that permits a minimum inventory . . . and the Sales Reward Premium Plan.

It will pay you extra profits and customer good will to feature Thermoid.



Thermoid

this is a Horse of a DIFFERENT COLOR!

It's a Fact!

The weight of this 1500 lb. horse was lifted with a Thermodized Pre-Stretched Fan Belt which had been taken out of actual service in a car. After the test, the fan belt was reinstalled and performed perfectly with absolutely no change in adjustment.



Thermodized
PRE-STRETCHED

FAN BELTS

THERMOID COMPANY • TRENTON, NEW JERSEY

NOVEMBER, 1941

When writing to advertisers please mention Motor Age

91

Wage-Hour Division

Rules on Retreaders

Many inquiries on the status of tire retreaders and reconditioners under the minimum wage of 40 cents an hour for workers in the rubber products manufacturing industry has prompted the Labor Department's wage-hour division to rule that employees engaged in such retreading or recapping of tires in interstate commerce are covered by the minimum wage order.

Deputy Administrator Baird Snyder has issued this statement on the subject:

"We feel that tire retreading and

tire recapping are processing activities of the type usually performed in independent manufacturing plants. Therefore, the 40-cent wage order applies in all cases where the tire retreading or recapping is done for interstate commerce."

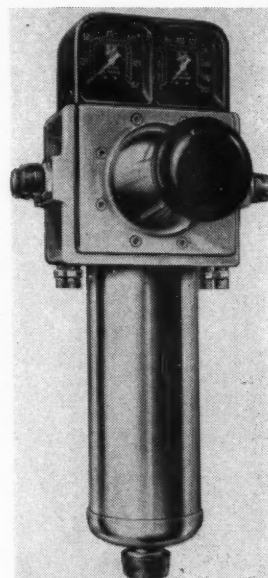
The wage-hour division's wage order fixing a 40-cent minimum became effective July 28 after the Rubber Products Manufacturing Industry recommended the rate to Wage-Hour Administrator Philip B. Fleming. Under the order, employees must also be paid at least time and one-half for all overtime in excess of 40 hours in any one week.



"I don't want a car that laughs at hills, young man. I want one that's serious about them."

New Extractor

A new oil and water extractor for use with paint-spraying outfits has been announced by the Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill. The new E-75 extractor has a capacity of 75 cu. ft. per min. and incorporates a new air-cleaning principle



with a metal filter, said to clean the air thoroughly without impairing the free flow. Its new design and large capacity insure a more uniform air pressure, the manufacturer states.

Globe Hoist Has New Feature

A new patented automatic low oil control for hydraulic automobile lifts has just been announced by Globe Hoist Co., of Des Moines, Iowa, and Philadelphia, Pa. This device makes it impossible for a lift to operate on air. It prevents sudden drops, sudden jumps or jerky operation when the lift is being raised or lowered. The lift superstructure will rise only as far as there is oil to raise it. If it stops short of the normal rising height, the need for additional oil is immediately indicated. The low oil control is available as extra equipment to Globe auto hoists.



IT wouldn't be there if it were not for Puritan's extra safety, extra performance . . . The first fluid to meet the exacting requirements of aeronautical use.

What This Means to Automotive Men:

To fleet and truck owners—it means longer service, less frequent flushing, longer life to rubber, fewer lay-ups, greater safety, cheaper maintenance.

To garage and service men—it means better satisfied and safer customers, freedom from kickbacks, peace-of-mind.

To both—it means a superior, premium quality fluid that meets the most severe conditions ever imposed on a brake fluid—at no advance in price!

See Your N.A.P.A. Salesman

PURITAN COMPANY, INC., ROCHESTER, N. Y.





Built to "TAKE IT"!

Ever watch a service man give a tire valve "the works" to line up a tube when mounting a tire? Some use special tools—most just reach for their pliers, grab the valve and haul away. Leaky valves would be common if the more than one hundred and fifty million standard tire valves in daily use were not "built to take it".

Schrader tire valves have a "backbone" machined from solid brass rod. Extending full length, this sturdy housing completely safeguards the valve mechanism from plier

pressure, rim hole friction and the wear and tear of mounting. The valve cap provides the final safeguard against the normal abuses of everyday operation. Guaranteed airtight up to 250 lbs. pressure, it shuts out dirt . . . and seals the valve mouth.

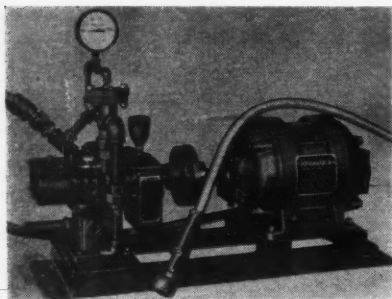
Schrader REG. U.S. PAT. OFF. **TIRE VALVES**



A. SCHRADER'S SON Division of Scovill Manufacturing Company, Incorporated **BROOKLYN, NEW YORK**

Car Washer

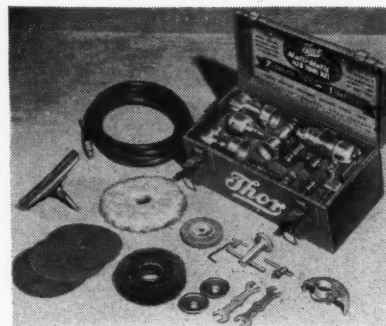
The 1942 model of the Rotawasher, a complete carwashing system made



by the Rotawasher Corp., 118 St. Clair Ave., E., Cleveland, Ohio, has just been announced. Outstanding features of the machine are that it delivers a nozzle pressure of 300 lb., is equipped with a Jetmixer for supplying a small amount of kerosene with the water, thus making unnecessary the use of hot water, soap or other cleansing agents; and also has a Jetvac which is a vacuum-cleaning system for cleaning car interiors.

Air Tool Kit

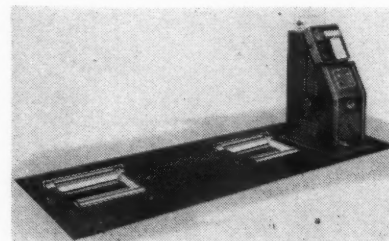
The latest addition to the line of air tools manufactured by the Inde-



pendent Pneumatic Tool Co., 600 West Jackson Blvd., Chicago, Ill., is the Multi-Matic Air Tool Kit. This kit consists of a small, powerful air-motor drill, with interchangeable attachments for drilling, grinding, sanding, polishing, buffing and hole-sawing. A feature of the kit is that it is not necessary to buy the entire kit at one time; any tool can be purchased as a separate unit if desired.

Chassis Dynamometer

Ted Nagle Equipment Corp., General Motors Bldg., Detroit, Mich., announces a new chassis dynamometer. The absorption unit is all electric, operating from 110 volt AC socket, and consists of a field coil with adjustable field excitation, and a rotor driven by the rollers which are driven by the wheels of the car being tested. By



varying the excitation of the field coil, magnetic lines of force, called eddy currents, offer resistance to the turning of the rollers, which has the effect of duplicating various conditions of road operation. The complete unit, known as Model 1000, carries a net price of \$1,945.

Floor Mat Patches

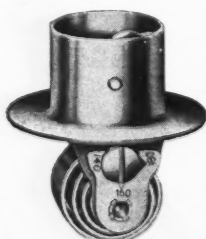
The Hermil Co., 1130 N. Larrabee St., Chicago, Ill., offers a line of rubber floor-mat patches so that worn floor mats may be repaired rather than discarded. These patches are made of live rubber, black and brown in color, have beveled edges, with adhesive back, and are ready to apply. They are packaged in kits containing 10 trapezoid mats (heel plates) size 4 x 6½ x 8 in., and eight rectangular patches, size 6 x 11 in. Also available is a patch in size 7 x 14 in. to cover the space under the clutch, brake and accelerator. These patches are designed to look like an original reinforcement rather than a patch on a worn-out mat.

"Since You're Driving Her Another Year

**IT BETTER
BE GOOD"**

● Quality merchandise is easy to sell now. That is why thousands of service men are stocking Dole Adjustable Block Type Thermostats for replacements.

Since Dole production facilities are being shared with the Government, you should stock the Thermostats that give you the widest coverage,—that means the "Adjustables." Adjustable Thermostats can be set for summer or winter driving or according to the type of anti-freeze used. Tell your customer to come to you when he wishes his Thermostat reset and you will very likely get his spring and fall check-up business.



Form the good habit of checking the Thermostat on every tune-up job.

THE DOLE VALVE COMPANY
1901-41 Carroll Avenue
Chicago, Illinois
Representatives in all Principal Cities

One of the Complete Dole Line: The B-65-A Adjustable Block Type Thermostat for Motor Temperature Control and Hot Water Heater Efficiency.

DOLE

7 REASONS YOU CAN GIVE YOUR CUSTOMERS FOR THERMOSTAT REPLACEMENT

1. All moving parts eventually need renewal.
2. The automotive designer included the original thermostat for good reasons. Replace it for the same reasons.
3. Motor performance and economy as promised by the manufacturer require motor temperature control.
4. Stop condensation of rich choke mixture on cold cylinder walls, where raw gas cuts oil film.
5. Prevent gas on cylinder walls reaching crank case to dilute and cause sludge.
6. Provide quick sensitive thermostat OPENING in warm weather to avoid overheating evils, ring varnish, etc.
7. Get quick heat for greatest comfort from hot water heaters.

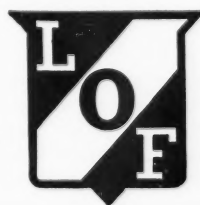
Replacement
THERMOSTATS

"Just around the corner.."

THERE'S a Libbey-Owens-Ford Authorized Dealer near you, ready to take care of your Glass requirements. He has everything it takes to do a good replacement job; the best of glass ...L·O·F Hi-Test Safety Glass...a properly equipped and manned shop, and a desire to do the best work possible.

All these things are needed to give glass replacement jobs that help you earn and keep your customers' good will.

For maximum seeing comfort, specify clear-vision L·O·F Hi-Test Safety PLATE. This glass is ground and highly polished to provide freedom from distortion as you look through it. Drivers and passengers note less eye fatigue when riding behind this glass.



LIBBEY · OWENS · FORD
HI-TEST *Safety Plate* GLASS

Muffler Test Plug

A new muffler-testing device has been introduced by Maremont Auto-



motive Products, Inc., 17th & South Ashland Ave., Chicago, Ill. It consists of a plug, which is inserted in the end of the muffler tail pipe while the engine is running at 10 to 15 m.p.h. This causes a back pressure to be built up in the exhaust system. The exhaust gases will escape through any cracks or band connections that may exist, making it easy for the mechanic to convince the car owner that repairs are necessary.

Rust Preventive

The Simoniz Co., 2100 Indiana Ave., Chicago, Ill., has announced a new



product known as Corol. This product is said to prevent the formation of rust or corrosion of metal, and to afford protection from salt spray. It can be applied with a brush, cloth or spray, leaving a film that will not crack or check. Can be removed with gasoline or kerosene.

Linco Transfer Pump

A new pump for dispensing barreled liquids such as alcohol, anti-freeze, or for transferring liquids from one barrel to another has been announced by the Linendoll Corp., 413 N. Franklin St., Chicago, Ill. This pump is permanently primed, the pumping unit being located at the bottom of the barrel. It is all-metal construction and all-weather finish, and is identified in the Linendoll catalog as Model 1000 Stroke-Saver pump. List price \$4.25.

Windshield Wiper Hose Merchandiser

The Raybestos Division of Raybestos-Manhattan, Inc., Bridgeport, Conn., has a new colorful windshield wiper hose merchandiser. This two-color, double-strength carton contains



100 ft. of hose, and can be placed on the counter or hung on the wall. An 18-in. rule is printed on the face of the carton to make it convenient to measure the length of hose desired. The merchandiser can be refilled when emptied.

Cole-Hersee Company
serves AMERICAN
DEFENSE

Quality
ELECTRICAL
AUTOMOTIVE
EQUIPMENT

Cole-Hersee Products
are used by leading car, truck and trailer manufacturers as original equipment.

★ With you, as with us, defense comes first. But we are endeavoring to give our customers the best service possible under these conditions, and ask your cooperation.

COLE-HERSEE COMPANY
54 Old Colony Avenue Boston, Mass

Rep.—Eastern Canada Ontario Quebec Maritimes
S. F. BACHER & CO., 310 Spadina Ave., Toronto, Ont.

Rep.—Eastern Canada, Ontario, Quebec, Maritimes
S. F. BACHER & CO.
310 Spadina Ave., Toronto, Ont.



make 'em *last*/

Many fleet superintendents are finding new profits not only by making their TRUCKS last through the use of SKF Bearings for replacement, but by making the BEARINGS last with proper maintenance. They're telling their mechanics to mount and install bearings the right way, and to check lubrication regularly. Now with Winter coming on, they're telling them to eliminate cracked bearings by heating bearings taken out of cold stock to blood temperature before installation. Correctly installed and lubricated, SKF Bearings will outlast the present crisis — no matter how long it lasts.

4918

SKF INDUSTRIES, INC., FRONT ST. & ERIE AVE., PHILA., PA.



Tests Distributors

One of the latest additions to the line of engine-testing equipment manufactured by Lanagan & Hoke, Inc., 431 Collom St., Philadelphia, Pa., is the No. 500 Isotronic Distributorgraph. With this instrument, the distributor can be checked under conditions duplicating actual running performance. It includes a tachometer with a distributor speed range from 0 to 2500 r.p.m., a vacuum pump which produces any vacuum up to 24 in. for testing vacuum advance mechanism, and a degree ring 10% in. in diameter, graduated in single degrees,

and a speed control as well as a three-way switch for right or left-hand rotation of the distributor.

Fan Belt Selector

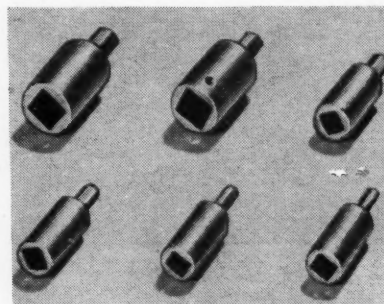
The latest merchandising aid developed by the Thermoid Co., Trenton,



N. J., is a pocket-size fan belt selector made on the slide rule principle, by which it is possible to determine the catalog number and list price of the correct Thermoid fan belt for any popular car in a few seconds. This new device is available to retailers through Thermoid distributors and in Thermoid fan belt deals.

Special Sockets

Socket wrenches for all popular sizes of socket head cap screws and set screws of the Allen type are now available in the Plomb line of hand tools, manufactured by the Plomb Tool Co., 2209 Santa Fe Ave., Los Angeles, Cal. Socket sizes are from

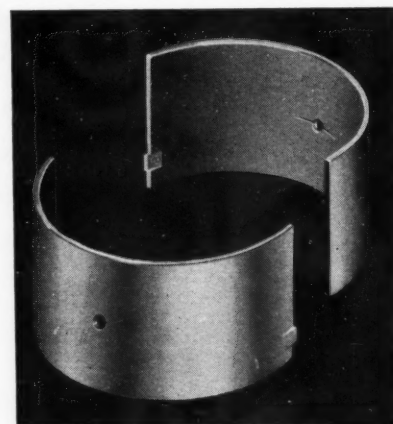


1/4 in. to 5/8 in., for hexagon openings from 1/8 in. to 3/8 in. The drive plug is made separately from the socket part, and is held in position by a small set screw. This makes it possible to save the socket by installing a new drive plug if the original drive plug should break.

Acid-Proof

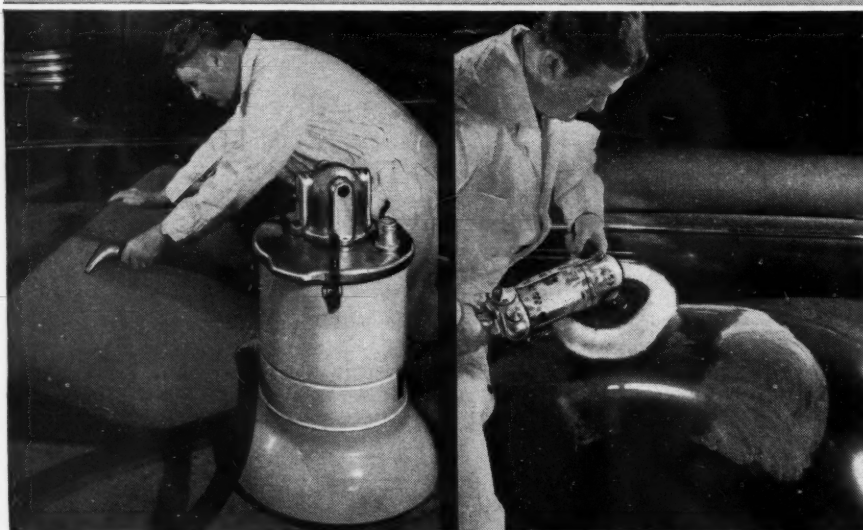
Replacement Bearings

The latest addition to the line of replacement bearings made by Clawson & Bals, Inc., 4701 W. Lake St., Chicago, Ill., is an acid-proof copper alloy bearing designed for use in heavy duty engines. This type of



bearing was developed to withstand the extremely high bearing pressure encountered in modern aircraft, Diesel and heavy-duty gasoline engines. Acid-proof bearings have a dull, even-toned surface, in contrast to the mirror-like surface of babbitt-lined bearings.

How You Can Clean Up Profits



On All Car Cleaning Jobs

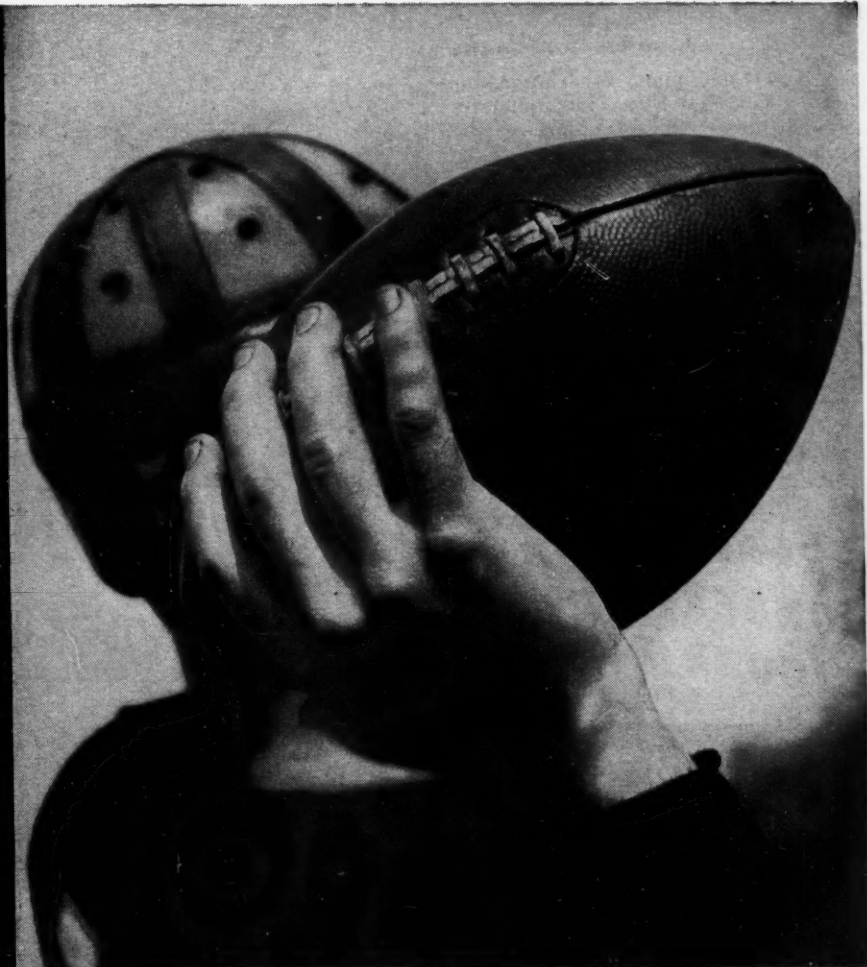
Put this Van Dorn equipment in your shop to clean used cars faster and better. Turns out far better jobs for your regular customers, too. Van Dorn's No. 95 Vackar Portable Electric Vacuum Cleaner *speedily* and *thoroughly* cleans upholstery, floors and interiors. Especially built to remove excess moisture after scrubbing upholstery—mechanism is protected against corrosion. Van Dorn's

Power-Glaze Process, consisting of Electric Buffer and other accessories, cleans and polishes finish to restore all sparkle of the original paint job. Phone your jobber to demonstrate this modern Van Dorn cleaning and polishing equipment, and to tell you about easy payment plan—or write today: The Van Dorn Electric Tool Co., 727 Joppa Road, Towson, Maryland.



"Van Dorn"
(DIV. OF BLACK & DECKER MFG. CO.)
PORTABLE ELECTRIC TOOLS

***TIMING
DOES THE
TRICK!***



CHAMPIONSHIP PERFORMANCE on the gridiron calls for the split-second timing of every pass, every play. Getting top power and performance out of a modern car depends a lot on *correct ignition timing*.

It's good business to make a point of setting the spark—and setting it *right*. It will give your customers better running automobiles, and that will help bring them back to your shop the next time they need service.

Whether you reset ignition timing as a single operation or as part of a general motor tune-up, be sure to advance the spark far enough to take advantage of the extra power available in today's better, higher anti-knock gasolines. And make doubly sure your customers understand that the higher the anti-knock quality of the fuel they use, the farther you can advance the spark toward the maximum power setting without "knock."

Ethyl Gasoline Corporation, manufacturer of anti-knock fluids used by oil companies to improve gasolines.



SET THE SPARK FOR TODAY'S BETTER GASOLINES

New Plant Will Build

Engines for Tanks

A \$2,411,096 plant for the manufacture of radial Diesel medium tank motors, under the direction of the Guiberson Diesel Engine Co. will be erected immediately at Garland, Tex. Announcement of the new plant was made immediately after an award by the War Department in Washington of a contract to the Guiberson Co. for large quantities of radial type, air-cooled Diesel engines for the M-3 tanks. The new industrial plant will employ a minimum of 500 men.

The Guiberson Diesel Engine Co.

already has on contract more than \$21,000,000 of engines and spare parts to be built for the Army, and for the past one and one-half years it has been manufacturing engines for light tanks at the plant of the Buda Co. at Harvey, Ill.

Hoke Made Manager

Edward S. Hoke, wholesale manager of the White Motor Co. in Buffalo for the past two years, has just been made manager of the company's Albany branch, according to announcement of J. J. McNally, manager of the New York State-Pittsburgh region.

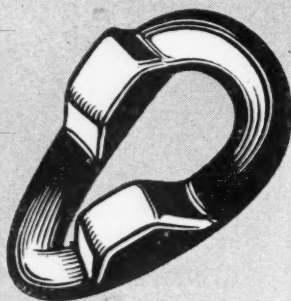


"What happened? She made a motion for a left turn and turned left."

**GREATER SAFETY
LONGER MILEAGE
BIGGER PROFITS**

with

**Campbell
LUG-
REINFORCED
Tire Chains**



*The Greatest
Advance in
Tire Chains
in a Decade*

Here's a chance to make money—once again—on tire-chains sales... with Campbell Lug-Reinforced Tire Chains. Here are chains your customers have been demanding for years. They can tell just by looking at Campbell Lug-Reinforced Tire Chains that

these chains are scientifically designed and constructed for greater safety and for greater mileage—service they never before even hoped to get. Don't miss these extra sales opportunities... get in touch with your jobber today. If he can't supply you, write direct.

*No Other
Tire Chains
Give You
ALL These
Advantages*

1. ONE-PIECE CONSTRUCTION... Finest molybdenum steel. One piece. No welded bars to break off. Longer life.

2. POSITIVE ALL-WAY TRACTION... Exclusive, patented saw-tooth design guarantees new high in traction under slipperiest conditions—ice, snow, etc.

3. LONG LIFE... Finest case-hardened alloy steel, positive traction, and one-piece construction give you mileage you never expected.

4. FULL PROFITS... Your profits on Campbell Lug-Reinforced Tire Chains are generous and fully protected. These chains are sold only through respected, carefully selected channels of distribution.

INTERNATIONAL CHAIN & MFG. CO.
YORK PENNA.

Display Carton

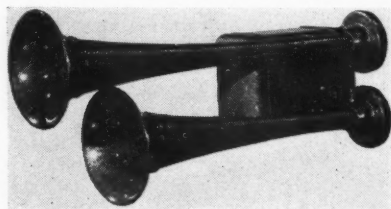
A brake-lining display carton is the latest addition to the line of sales helps issued by Southern Friction Materials Co., Charlotte, N. C. This new car-



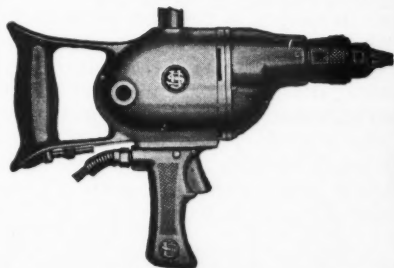
ton serves as a shipping carton, and at the same time acts as a display merchandiser and stocking medium, since it contains a popular assortment of 10 brake lining sets.

Chime Horn

One of the latest products of the Sparks-Withington Co., Jackson, Mich., is the Music-Aire Courtesy Chime and automobile warning signal,



with a pleasing, melodious note. It is intended as a polite signal in traffic, and not for use on the highway. The unit is furnished complete with brackets, necessary wire and push button for separate operation from the regular equipment horn.



1/2" COMMANDER DRILLS

Ball bearing. For all-round use.

- • •
- HEAT GUNS
- TIRE DETREADERS
- SCREW DRIVERS

your right hand man



READY TO SPRING INTO ACTION



DRILL STANDS

Turn drills into drill presses. Enclosed compression spring counterbalances weight of drill and helps lift drill out of work when finished.

- • •
- HOLE SAWS
- VALVE REFINISHING SHOPS

UNITED STATES ELECTRICAL TOOLS

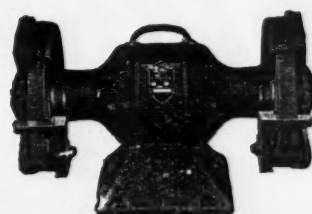


1/4" AUTOMATIC DRILLS

Ball bearing. A light weight drill for tough jobs.

- • •
- SANDERS
- POLISHERS
- VALVE SEAT GRINDERS

A "must" in every garage or maintenance department when jobs must be turned out quickly, efficiently and without lost motion or waste of time and effort.



"Utility" BENCH GRINDERS

6" to 10". For tool edging or general grinding. Motor cannot burn out.

- • •
- GRINDERS
- BUFFERS
- SOCKET WRENCHES

GET CATALOG—GET DETAILS ON AMERICA'S GREATEST DRILL LINE

THE UNITED STATES



ELECTRICAL TOOL CO.

CINCINNATI,

OHIO, U.S.A.

Training 453 Mechanics

Already 453 men have gone into training under the supervision of Pontiac dealers to replace service mechanics who have entered defense industries or have been drafted into the army, according to D. U. Bathrick, general sales manager of Pontiac Motor Division.

Since the training program for Pontiac mechanics was announced last April, a survey of Pontiac dealers' service department personnel has been made to determine how many localities have already been affected by the national defense emergency.

"Reports from 469 dealers in 23 zones reveal that 212 of them are in need of trained mechanics," says Bathrick. "Under the program worked out with the approval of the OPM and the National Automobile Dealers Association 453 new Pontiac mechanics are now in training."

Buys Finance Co.

Joint announcement was made on Oct. 27 by Lee Frank, chairman of the board of National Bond and Investment Co., Chicago, and A. E. Duncan, chairman of the board of Commercial Credit Co., Baltimore, that an agreement has been entered into whereby the assets of National Bond and In-



"Listen! That quarter covers the parking only."

vestment Co. and its subsidiaries will be acquired for cash at approximate book value by Commercial Credit Co.

Duncan stated that Commercial Credit Co. expects to continue, and possibly through an enlarged territory, the successful plans and policies for many years pursued by National Bond and Investment Co. and its subsidiary companies. New subsidiaries of Commercial Credit Co., under similar names used by National Bond and

Investment Co. and its subsidiaries, will continue to operate the business as heretofore at their present local offices with Chicago headquarters, and with their present management and personnel, without any change in present National Bond plans and policies with dealers and the public.

Brake Tools

Barcalo Mfg. Co., Buffalo, N. Y., has developed a new set of tools for adjusting operations on the brakes of Ford, Mercury and Lincoln-Zephyr cars. These tools are made of special analysis tool steel, drop forged, carefully machined and hardened, with cadmium finish. Will service passenger cars and also trucks. List price per set, \$3.00.

General Oil Filter

A new improved model of the General oil filter has been announced by General Filters, Inc., 9001 Alpine Ave., Detroit, Mich. This new model has a larger capacity for filtering, and a new type replacement cartridge that can be installed without the use of tools. The cartridge is housed in a sturdy steel shell with heavy brackets to withstand vibration. It is designed for installation on passenger cars, trucks, buses and tractors.

STREAMLINED FITTINGS



MODERN EQUIPMENT CORP.
DEFIANCE, OHIO, U.S.A.

No cheap plumbing pipe fittings in PAR air compressors. Streamlined compression fittings are used throughout—thus friction is reduced to a minimum . . . chance of leakage is eliminated . . . over-all efficiency is stepped up . . . power costs reduced to rock bottom. This is another example of PAR engineering thoroughness . . . another reason why PAR means "most for your money"!

By Comparison — You'll Buy

PAR

"HOW TO BUY AN AIR COMPRESSOR" . . . a fact-filled catalog and check list — is yours for the asking. Write for your copy today!

MAKE RUST AND DIRT Pay Dirt..

**RUSTBUSTER & DIRTBUSTER Are Naturals
FOR BIG PROFITS THIS SEASON**



DIRTBUSTER

The Easy
CAR WASH
also for Upholstery Shampoo
and General Cleaning
No Streaking* No Spotting*
No Chamoising
* Lowest Cost Per Car!
Save money . . . Save labor
Save the Finish, too!

DIRT BUSTER BEADS are a remarkable modern cleanser—lower in cost per car, and yet more effective and safe than any soap or cleanser . . . with all the good qualities of soap but without its disadvantages . . . fully efficient in hard or soft water—cold, warm or hot . . . safe on waxed surface.

Causes dirt, grease, spots to "lift" off of metal or fabric quickly . . . easily . . . with a minimum of labor—without risk of scratching or staining. Fresh, pleasing aroma eliminates soapy, musty smell when cleaning upholstery.

Special . . .
EXTRA-PROFIT DEAL!
400-Car-Wash-Size-Can



**Plus FREE
Blow-Dry
Gun**

which enables you to do a first-class professional wash job without rags or chamois—eliminates risk of scratches and streaks.

Packed 6 deals to carton
ALSO FURNISHED IN
92 Car-Wash-Size Trade \$ 1.20
1250 Car-Wash-Size Trade 12.00
ONLY \$6.50
COMPLETE Trade Price

IMPORTANT!—Manufacturer's Agents: Several good territories are now open to active, hard-working manufacturer's agents who are looking for a profitable line that can be easily sold and quickly

delivered by you and your jobbers. You can depend on prompt deliveries because our raw material sources are not affected by war priorities . . . just write—Department E—for full particulars.

THE ORIGINAL

RUSTBUSTER

CLEANS ★ CLEARS ★ RUSTPROOFS
AUTOMOTIVE COOLING SYSTEMS

Just Pour It In!

No Draining . . . No Flushing . . .
Semi-Permanent Rustproofing

Originally used for large truck fleets and bus operators . . . now available in passenger car sizes of 1 quart per average car.

RUSTBUSTER dissolves the rust . . . clarifies the water . . . rustproofs the entire cooling

system of the average car for at least a season SAFELY—contains no caustics or acids. Costly labor of draining and flushing is eliminated—just pour RUSTBUSTER in and let it do the work.



Special Offer . . .

You Make Extra Profits . . . and cut labor costs too . . . with **Special RUSTBUSTER Merchandising Deal!**



1 Case (12 Cans) costs you \$7.20
1 EXTRA CAN FREE
(Lowers Dealer Cost to 55¢ per can)
YOU SELL FOR \$1.00 per can \$13.00
YOU CLEAR \$5.80

**PLUS
FREE RUSTBUSTER
DEMONSTRATING
DISPLAY WITH
EACH CASE**

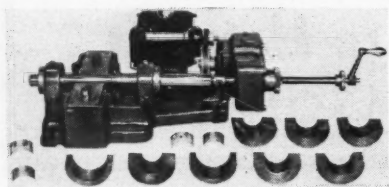
. . . and the cleverest selling aid ever developed for an automotive chemical—4 little bottles tell your story as completely as a book.

3 years of unbroken satisfaction have built Cannon Products to nation-wide distribution through leading jobbers. They are good products . . . are expected to produce a good profit in their distribution.

CANNON CHEMICAL COMPANY, INC.
210 Broadway • Everett, Mass.

Bores Insert Bearings To Any Size

Lempeo Products, Inc., Bedford, Ohio, has a new bearing-boring machine for accurately boring to size any under-size insert bearing. The machine is being offered in two models, one a light, hand-operated model



and the other heavier and powered by a 1/4 hp. motor. With this equipment, it is possible to carry in stock only the 1/16 in. undersize unfinished bearing inserts, and bore them to size to fit the bearing journal on the crankshaft.

Anti-Freeze Selling Aid

Sales of single quarts of anti-freeze after the original filling have, heretofore, meant that the radiator drain cock had to be opened and a quantity of solution drained off to make room for the new quart. Now the Lacey-



Webber Co., Kalamazoo, Mich., has developed a device which they call Radiator Sukker. It is designed to syphon the solution out of the top of the radiator. This simplifies the operation of making room for the additional quart of anti-freeze.

Appearance Kit

A three-way cleaning and polishing combination kit is the plan introduced by Formax Mfg. Co., 3999 18th St., Detroit, Mich., for automobile appearance reconditioning. The special trial kit is being offered to introduce the products to the trade for appearance reconditioning of used and customer-

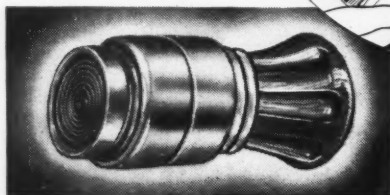
owned cars, and includes No. 23 Extra Fast Cut Rubbing Compound, Liquid Automobile Wax, and Auto Polish and Cleaner.

Cleans Cooling System

Wondersolv, a product of Miller Mfg. Co., Camden, N. J., is being offered as a cleaner for the engine cooling system. It is said to remove rust and scale from the system, and prevent further accumulation. The manufacturer claims Wondersolv contains no harmful chemicals that would be injurious to rubber or metal. A half pint of Wondersolv is sufficient for the average cooling system.



Want to Boost Your Profits on Cigar Lighters?



REPLACEMENT CARTRIDGE No. 1115: A big, profitable seller because by merely replacing old Cartridge with this new No. 1115, it makes most ordinary Cigar Lighters **AUTOMATIC!** Packed in attractive cartons. Display Card and Counter Display Carton available.

HEATING ELEMENT: An Automatic Replacement Element with thermostat mounted inside. A fine, precision-made product designed for long life and better service. 12—No. 1105 Elements mounted on colorful Display Card if desired.



PRECISION ENGINEERED

Sinko
AUTOMOTIVE SPECIALTIES

MODERATELY PRICED

SINKO TOOL AND MANUFACTURING CO. • 351 NO. CRAWFORD AVE., CHICAGO, ILL.



JUST A WORD ABOUT DELIVERIES

Like most manufacturers of metal products we're having our troubles getting enough materials. And sales have been simply tremendous... breaking all previous records. Although our production on most SINKO items is still far greater than ever, it just hasn't been possible to keep up with the demand. Please, therefore, order far in advance. If your shipments are delayed, try to be patient... remember we're doing everything possible to cooperate and to serve you in the right way.

Modern Service Men Say:

YOU NEED DOOR-EASE for CLEAN BODY LUBRICATION



DOOR-EASE Stainless Stick Lubricant is specified by leaders in the industry for door dovetails, lock tongues, rubber seals and door bumpers, hood lacings and other exposed friction surfaces. Lubricates without soiling clothing or car upholstery.

DOOR-EASE Dripless Oil is best for hinges, locks, brake fittings, and other concealed friction parts. Enters as a rapid penetrating oil... congeals to a lasting, dripless lubricant.



by the makers of
RUGLYDE Rubber
Lubricant.

Use DOOR-EASE Products to eliminate squeaks and "birdies". Modernize your lubrication service. Please your customers.

Your jobber can supply you.



AMERICAN GREASE STICK CO., MUSKEGON, MICHIGAN

Canadian Sales Representatives

COLONIAL TRADERS, Ltd., 144 FRONT STREET W., TORONTO



* *Repairs
Replacements
Reconditioning*

GENERAL MOTORS

GENERAL
MOTORS

GENERAL
MOTORS
DEALERS

*Partners
in*
PROGRESS
through
SERVICE

CHEVROLET • PONTIAC • OLDSMOBILE
BUICK • CADILLAC

Following is a brief digest of important articles appearing in this issue of MOTOR AGE. Read the digest and discuss procedure with your customers.

TUNE-UP FOR ECONOMY

With taxes, projected and already imposed, scaling unheard-of peaks, and prices lagging only a little behind in the spectacular rise, car owners will be forced to economize in every way possible, and will look to the ser-



viceman for help. This article summarizes the many operations that can be performed to reduce operating costs and save materials. Many of the operations entail the use of new parts such as breaker points, pistons, rings, spark plugs, oil filters, etc. The article will not only be a useful guide to servicemen in talking economy to customers but will give jobbers a hint as to possible trends in demands for replacement parts.

SPECIFICATIONS OF THE NEW CARS

Spread over ten full pages, these specifications give complete data on every 1942 model passenger car. A virtual service handbook, these pages will be kept for reference as long as the new cars remain in use. They are more valuable than ever this year, because of the changes and substitutions made necessary by material shortages caused by the defense program.

EQUIPMENT, PARTS, AND HAND TOOLS

It's obvious that the well-equipped shop, using the right hand tool for the right job, and labor-saving equipment, can turn out more and better work and thus get a larger share of the increased volume of service business resulting from the defense emergency. Still it is a point that bears repeating, and that is just what this article does. It shows just how equipment and an



adequate variety of hand tools help speed work, and emphasizes the importance of replacing worn parts with new ones to prevent comebacks. Since it deals with supply as well as with demand, it is as important for the jobber as for the serviceman.

JOBBER'S OF THE NOVEMBER

BEFORE anyone attempts to work out a solution to a problem, he must have the facts. Today the servicemen of the nation face a situation that is entirely new to them. The automobile business is being called upon to an extent unknown in World War I to aid the prosecution of a titanic struggle. One job that must be done is to keep the country's automobiles in operation, and that job belongs to the serviceman. It raises certain problems for him, problems that can best be solved when he knows all the facts.

To supply these facts, MOTOR AGE has prepared this special issue. It is devoted, as the accompanying digest of articles and special features indicates, to facts and figures on the service business. With the help of these facts, the servicemen will be able to do a speedier and more intelligent job of meeting future demands on his time and skill.

The data are important also to the jobber, for they reflect the interests of the men who are his customers.

SERVICE MARKETS

Here are six full pages devoted to facts and figures on the present state of the automotive market that will repay close study by servicemen. They reveal, among other things, the number, kind, and age of cars in use in various localities, the number of repair shops competing for the business of keeping them running, the variation in the amount of service business

done in various areas, the number of replacement parts being sold, and the number of trucks in use. The studies offered strike a new high in the usefulness for the serviceman trying to gauge his market.



DIGEST MOTOR AGE

HOW'S BUSINESS

A MONTHLY REPORT ON MAJOR ITEMS BY 500 JOBBERS

OCTOBER, 1941

NATIONAL TOTAL	Good	Fair	Poor	NATIONAL TOTAL	Good	Fair	Poor
ACCESSORIES	Fair			SHOP EQUIPMENT	Fair		
Abrasives	79	89	17	Battery Charging Equipment	80	67	31
Anti-Freeze	144	30	20	Car Lifts	15	68	76
Car Radio Sets	13	23	62	Car Washers	6	43	99
Car Radio Accessories	10	26	64	Compressors	42	91	43
Chains	36	63	74	Drills (Electric)	69	96	28
Heaters	79	83	31	Electric Testing Equipment	38	82	57
Horns	11	69	67	Jacks	72	102	20
Lacquers	100	72	15	Lubricating Equipment	56	94	30
Oil Filters	134	74	8	Paint Spray Equipment	41	90	50
Oils and Greases	44	80	20	Tire Service Equipment	12	52	82
Polish	49	125	25	Tool Kits and Sets	67	60	41
Seat Covers	66	90	25	Valve Refacers	35	79	61
Thermostats	70	93	37	Wheel Aligners	18	65	73
	835	917	465	Wheel Balancers	28	65	69
				Frame Straighteners	11	43	93
				Headlight Testers	16	37	90
				Welding Equipment	51	84	42
					657	1215	985
REPLACEMENT PARTS	Good			TIRES	Good		
Axle Shafts	39	100	59	Casings	42	29	7
Ball and Roller Bearings	115	81	7	Tubes	51	32	6
Brake Lining	130	68	14		93	61	13
Bushings	56	109	32				
Chains	33	108	60	ELECTRICAL UNITS	Good		
Clutch Plates and Parts	111	75	17	Armatures	74	106	15
Fan Belts	156	56	7	Batteries	134	55	14
Gaskets	171	37	4	Cable (Battery)	111	93	11
Gears (Rear Axle)	43	90	66	Coils	91	107	15
Gears (Transmission)	56	100	43	Other Ignition Parts	110	97	10
Mufflers	171	40	6	Fuses	84	112	20
Pistons	70	93	40	Ignition Wire and Cables	109	58	12
Pins	87	101	17	Lamps	121	84	12
Rings	148	51	9		834	753	109
Radiators and Cores	27	52	69				
Spark Plugs	179	36	10				
Springs (Chassis)	40	78	48				
Valves	112	82	13				
Water Pump Parts	132	69	8				
Engine Bearings	155	43	10				
	2031	1469	539				

MOST ACTIVE LINES

Positions of Leaders	Sept. 1941	Sept. 1940	Nov. 1940	Positions of Leaders	Sept. 1941	Sept. 1940	Nov. 1940
Spark Plugs	1	3	3	Brake Lining	11	10	17
Mufflers	2	1	2	Lamps	12	13	11
Gaskets	3	2	7	Ball & Roller Bearings	13	14	20
Fan Belts	4	6	10	Valves	14	19	..
Engine Bearings	5	4	9	Clutch Plates & Parts	15	11	16
Rings	6	5	15	Cable (Battery)	16	12	12
Anti-Freeze	7	18	1	Other Ignition Parts	17	15	13
Oil Filters	8	7	..	Ignition Wire & Cables	18	17	14
Batteries	9	8	8	Lacquers	19	9	..
Water Pump Parts	10	16	6	Coils	20	..	..

HOW ITEMS ARE RATED

"Most Active Lines" are chosen on the basis of the highest number of jobber reports indicating "Good" for the items selected among the twenty most active lines. "Activity" as used here has no bearing on volume, so the lists should not be interpreted as meaning the lines on which jobbers are enjoying the greatest volume. Most active lines are those which the greatest number of reporting wholesalers indicate are selling "considerably above normal" in their particular markets.

HOW TO READ THIS CHART

Information from which this chart is compiled is obtained monthly from a selected list of 500 wholesalers. Figures show the number of wholesalers reporting. Normal is taken as average sales for this month during the past few years.

Good—Sales considerably above normal.

Fair—Sales slightly above or below normal.

Poor—Sales noticeably below normal.

SERVICE FEATURES OF THE 1942 CARS

Contrary to expectations, the new models include numerous changes that affect service methods, as well as the



amount of time necessary to make repairs. Changes range from important differences in body design to larger bearings and wider use of automatic transmissions. This is the kind of reading that every serviceman considers "must," because it gives him the dope he must have to meet the service problems raised by the new cars.

NEW PRODUCTS

The progressiveness of automotive manufacturers has seldom been demonstrated in a more striking manner than in the number of new products they are putting into production during the present period of uncertainty. The new tools and equipment are designed to speed up work in the face of a threatened labor shortage, and the scores of new products described in this issue are well worth the attention of all servicemen planning to put their shop in condition to handle the growing volume of repair business.

COOLING SYSTEM CAPACITIES

Here, in easily readable form, is all the information the serviceman needs for readying cooling systems for winter driving. Capacities are given for all current cars by makes and models, including the 1942 cars.

FREEZING WEATHER AHEAD

Preparing a car for winter driving is a great deal more involved than pouring sufficient anti-freeze into the cooling system, and the serviceman who overlooks any of the vital points



is overlooking a chance to do work the customer wants and is willing to pay for if it is called to his attention. This article offers a complete list of the points of the cooling system, the fuel and electrical systems, and the accessories that should be put in shape or replaced if customers' cars are to give entire satisfaction during the coming cold months.



Name an effective way to speed-up repair work

THAT'S EASY! For getting repair work finished quicker, FIRST de-grease parts the speedy, effective Oakite way!

With MORE repair jobs ahead during the coming months, you will welcome the savings in time and effort that vigorous, fast-working Oakite materials provide in cleaning generator housings, carburetors, fuel pumps, shock absorbers and other parts. And since clean parts are easier and safer to handle, you start repairs sooner . . . finish the work quicker! Cost, too, is low. Write today for NEW, 36-page, FREE data manual giving details.

Manufactured only by

OAKITE PRODUCTS INC., 24C THAMES ST., NEW YORK, N. Y.

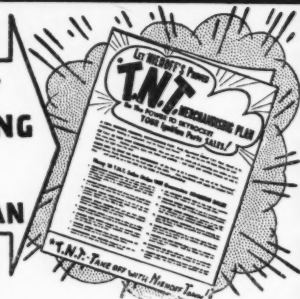
Representative in All Principal Cities of the U. S. and Canada

OAKITE *Certified* CLEANING

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NEW T.N.T.
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SEND for the amazing New Niehoff T.N.T. Sales Plan—a plan that Packs A Wallop! Now is THE time to start making Real Money with Ignition Parts! Learn how Niehoff helps sell for you with the exclusive 16 T.N.T. Sales Helps! Right now—just fill out and mail this ad to

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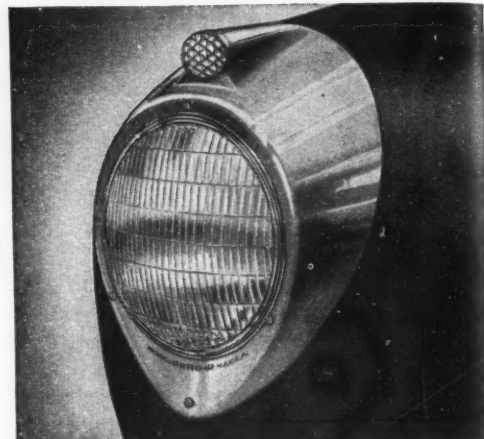
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SEALED
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ARROW SEALED BEAM CONVERSIONS change old type of headlights to sealed beam units. They fit right into the old lamp housing of almost every car and model.

Everybody wants good lighting. Patching up old head lamps is only temporary at best. ARROW Sealed Beam Conversions are the perfect answer . . . and you cash in twice. You make a nice profit on the sale of the lamps, and you get the installation work, too. Investigate ARROW'S complete line of Passenger Car Directional Signals, Driving and Passing Lights, Sealed Beam Fog Lamps and Mirrors. See your dealer or write direct to P. O. Box 108.

ARROW is proud of its contribution in helping transportation meet the needs of all out defense—and is continuing to serve its regular customers, too!

ARROW SAFETY DEVICE CO., Inc.

MEDFORD, NEW JERSEY

Stop Anti-Freeze Leaks!

TREAT HOSE CONNECTIONS
with
PERFECT SEAL



PERFECT-SEAL positively prevents loss or seepage of Anti-Freeze.

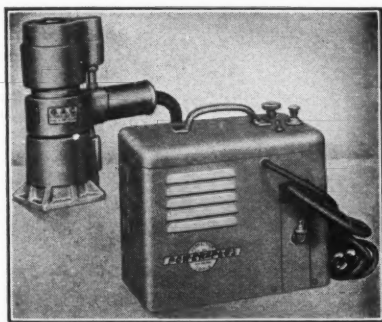
- FOR RADIATOR AND HEATER HOSE CONNECTIONS.
- FOR ALL GASKETS AND THREADED JOINTS.

P.O.B. MFG. CO., CINCINNATI, O.

IT'S SURPRISING

How Perfection Power-Plus Equipment

SAVES YOU MONEY

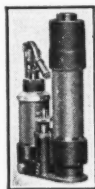
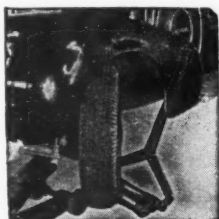


TWO-SPEED, TWIN CYLINDER POWER UNIT

High speed pumps quickly force ram to contact load, then automatically cut out and powerful slower speed pumps lift load. Uninterrupted flow of power to ram.

H-289 UNIVERSAL FENDER SPREADER

For close work where wide spreading is necessary and for spreading between fender and fender well. Closes to 1 3/4". Opens to 1 3/4" with 6" ram travel. \$14.75.



The only Double-Acting Push-Pull HYDRAULIC JACK

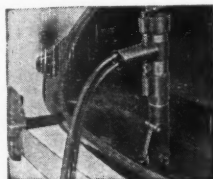
Supplies direct pull, for the repair of box channels, rear trunk racks, door posts, etc. Two units handle any type of body aligning, frame work, fender straightening, knee-action adjustment, steel running board straightening.

Operates in any position, even upside down. Safety valve prevents overloading, bending or breaking.

Power In a Small Area

H-80 PUSH-PULL SPREADER

For use with Perfection Push-Pull Jack. Ideal for trunks, pushing out sills, etc. Fits into 1" space. Open width 5 1/2". \$8.50.



Order from your jobber or write for catalog
G. A. C. MFG. CO., Ashland, Ohio

Parts from Auto Plants To Speed Tank Building

New plans to speed production of M-3 medium tanks, by bringing into play additional mass-production facilities at the Plymouth and other auto plants, have been announced by D. S. Eddins, Chrysler Corporation's Plymouth Division president.

"Major importance of this new plan," Eddins said, "lies in the fact that the increased flow of tank parts which will be produced will be used for a two-fold purpose.

"Present volume schedules—already increased beyond the original plan—will not only assist in speeding output at the Chrysler Corp., where these huge vehicles are now steadily rolling off three assembly lines, but will boost the production of other manufacturers who already are turning out some of these needed weapons—or who now are planning to start tank production within the near future.

"Lessons already learned in actual tank construction now enable Chrysler Corporation to adapt additional volume capacity to this work at the Plymouth factory. For the present, it will be conducted in a separate part of the factory specially assigned, where production of tank parts on a quantity basis will get under way in the shortest possible time."

Seeks Tank Order

The following statement was made by H. W. Anderson of General Motors at a defense mass meeting at Flint, Mich., Oct. 14:

"I have been authorized by C. E. Wilson, president of General Motors Corp., to make the following statement to General Motors' employees and the citizens of Flint:

"General Motors has been working on a number of defense projects to be produced in Flint, the principal one being the manufacture of medium and heavy tanks. The corporation has made a formal proposition to the proper government authorities for the manufacture of these tanks in Flint, under the supervision of the Fisher Body Division, and with the assistance of the Buick Division.

"This project would use part of the existing facilities in these two divisions, and when capacity operation is reached, will employ approximately 15,000 people in Flint.

"Other orders in negotiation could ultimately employ about 3,500 additional people."

Classified Advertisement

AUTOMOBILE SALESMEN AND STATION ATTENDANTS! People always need food, medicines and other Rawleigh necessities. No priority to put you out of business. Sell Rawleigh's well-known Products. Good nearby route open. Write today. Rawleigh's, Dept. K-151-MTG, Freeport, Ill.

with "KING" TESTERS
YOUR CUSTOMERS WILL KNOW
that YOUR Shop is
UP-TO-DATE



"KING" MT-625

Records show that repair business goes to the better equipped shops. Your customers know that high speed cars must be PROPERLY serviced and that special equipment is required. When you install a "KING" Tester, you not only service cars more efficiently, but you also create customer confidence. The "KING" MT-625 Tester is a beautiful, streamlined job that makes every conceivable test. The "KING" Cam Angle Meter (patent applied for) tests and adjusts distributors quickly and accurately. The Electro-Tach (or R.P.M. Indicator) is used to make engine adjustments to specified factory speed. The MT-625 has a Coil and Ignition Tester, an All-Electric Spark Plug Tester (patented), an oscillator type Condenser Tester, and an Exhaust Gas Analyzer.

Make EXTRA Profits with a "KING" WELDER

"KING" Welders are easy to operate and do such a fine job that work formerly sent out can be done in your own shop at a big saving in time and money.

You can also make extra profits on outside welding jobs. The W-6 has a capacity of 250 amperes with 18 heat stages ranging from 15 to 250 amperes. The W-5 has a capacity of 175 amperes with 12 heat stages. The heat stages are selected by a simple plug-in arrangement. There are no moving parts to wear or get out of order.

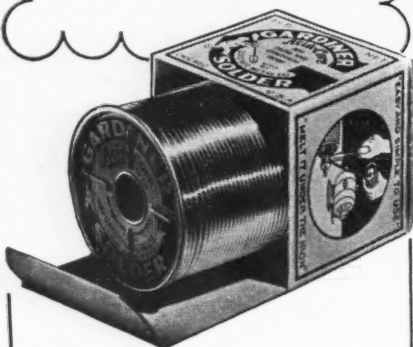


WELDER W-6

Ask our Jobber or Write us Jobber's Name

THE ELECTRIC HEAT CONTROL CO.
923 INMAN AVE. CLEVELAND, OHIO
"KING" Good Products Since 1914 "KING"

Sets the Pace
FOR QUALITY
and ECONOMY

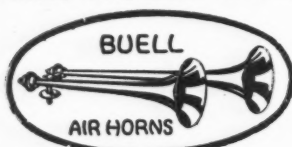


• The quick-acting flux of Gardiner Acid-Core Solder permits exceptionally fast, clean work. Unusually high tensile strength insures lasting bonds. Yet, thanks to modern methods exclusive with Gardiner, these better solders are low in first cost and most economical to use. Other Gardiner products famous throughout the automotive industry for top performance and bottom cost are Solid Wire, Bar and Body Solders . . . and Permanent Lining Babbitt metal.



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SAFETY INSURANCE for Auto, Bus, Boat and Truck



Vibrant—Dependable—Custom made to meet a demand. Buell horns increase safety—assure complete satisfaction. Quality horns for every purpose. Sound range up to 10 miles. Send for FREE literature today.

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2973 Cottage Grove Avenue, Chicago, Illinois



Wire Joe
Wire and Cable
Pawtucket, R. I.

Wood Named Manager

Main offices of Nash-Kelvinator Corporation's national defense manufacturing organization in Lansing, Mich., will be established in the former Reo truck plant on Mt. Hope Ave., which is now being rehabilitated and made into an aircraft motor plant, where essential parts of Pratt and Whitney bomber engines will be made, it has been announced.

This is one of two units of the Reo plant which are being converted for defense manufacturing by Nash-Kelvinator for the United States Government. The other is the former shipping and warehouse buildings of Reo on Cedar St., about a mile from the truck plant.

Head of the two plants will be Campbell Wood, a long-time executive of Nash-Kelvinator Corp., who has been named general manager. He will move his headquarters from Washington, D. C., to Lansing in the near future. Mr. Wood, who was a Major in the U. S. Army Air Corps during the last World War, has been with Nash-Kelvinator since shortly after the Armistice was signed. He has held a number of executive positions with the company.

Commercial Credit Co.

9-Months' Income Up

Commercial Credit Co. announces that consolidated gross volume of all receivables acquired during the third quarter ended Sept. 30, 1941, was \$229,770,124, compared with \$174,278,200 for the third quarter of 1940, an increase of 31 per cent. Gross volume for the nine months ended Sept. 30, 1941, was \$787,263,763, compared with \$590,990,286 for the nine months ended Sept. 30, 1940.

Consolidated net income from operations available for dividends, after providing for minority interests' portion and for all federal income, excess profits and other taxes, was \$2,376,141 for the third quarter of 1941, compared with \$1,973,351 for the third quarter of 1940.

After payment of \$129,559 dividends on Preferred Stock outstanding, net income for the third quarter of 1941 was \$1.22 per share on the Common Stock outstanding, compared with \$1.00 per share for the third quarter of 1940.

Clean as a Rifle Barrel!

RIMAC **VALVE GUIDE BRUSHES**

A few up and down strokes—and every trace of carbon is removed with Rimac Valve Guide Brushes. No scratching. One handle with solid steel shank takes all sizes. Only 5 sizes fit 90% of all cars and trucks. SET No. HB-5, net \$2.25.

RINCK-McILWAINE, INC.
16 HUDSON ST., NEW YORK, N. Y.



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Rimac Catalog

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Tyson

ROLLER BEARING CORP.
MASSILLON, OHIO

LINCOLN **LUBRICATING** **EQUIPMENT**

plays an important part in
DEFENSE PROGRAM

by providing fast, thorough, and economical lubrication of cars, trucks, buses and other motor vehicles so important in the transportation of defense materials and men engaged in defense production.

Ask your nearest jobber, or write us for details on this equipment.

LINCOLN ENGINEERING COMPANY
General Offices, St. Louis, Mo.

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PERMAG **Cleaning Compounds**

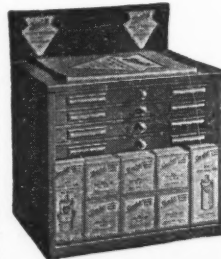
—have succeeded in cleaning jobs which have been given up as impossible! May we prove this fact to you?

PERMAG cleans floors, motors, parts, trucks, radiators, heavy work. PERMAG is low costing, efficient. Write for details and prices.

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Make Big Profits on Small Investment in **SHURHIT** **IGNITION** **PARTS**



Ask your Shurhit jobber or write us for details on General Ignition Assortments of fast-moving parts . . . Contact Points . . . Condensers . . . Rotors . . . Caps . . . Coils . . . Switches, etc.

SHURHIT PRODUCTS, INC.
Waukegan, Ill.

HEIN-WERNER **HYDRAULIC** **JACKS**

are built right and priced right

Ask your jobber or write us for details on complete line

HEIN-WERNER MOTOR PARTS CORP.
Waukegan, Wisconsin

Oil-Proof Heels

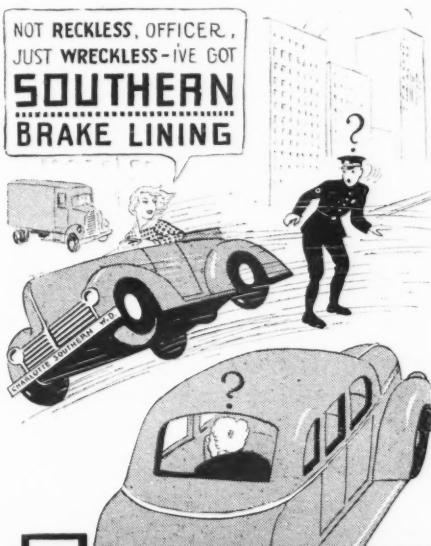
Soles and heels made from its new synthetic rubber, Ameripol, are announced by The B. F. Goodrich Co., Akron, Ohio.

The synthetic rubber soles and heels, the company points out, have special advantages for wear where there are oils, greases, gasoline, naphtha and other rubber solvents present.

Ameripol not only resists the deteriorating effects of these natural enemies of rubber and is relatively unaffected by them, but has a high resistance to abrasion, and successfully resists flex cracking.

Leasing New Building

Latest development in a series of recent expansions by the Plomb Tool Co., to meet the demands of a rapidly increasing volume of business is the leasing of a large building adjacent to the company's main office and factory at 2209 Santa Fe Ave., Los Angeles. The additional space has been acquired to ease crowded conditions in the present stock room and in the future will house the Contract Shipping Department.



SOUTHERN
FRICTION MATERIALS CO., CHARLOTTE, N. C.

**CLEANS
LUBRICATES
PROTECTS**

• The one
tune-up
that does
the com-
plete job

**MOTOR
RYTHM**

made solely by
R. M. Hollingshead Corp.
Camden, N. J. Toronto, Can.



TINKER OR THINKER?



**ELECTRO
TESTING
INSTRUMENTS**

Tinkering and guesswork have no place in today's Tune-up picture.

Can you determine breaker point dwell and resistance?

OR DO YOU JUST TINKER?

Can you detect and locate current leaks?

OR DO YOU JUST TINKER?

Can you check a voltage regulator accurately?

OR DO YOU JUST TINKER?

Can you tell whether a carburetor is operating at low or high combustion efficiency?

OR DO YOU JUST TINKER?

These and many other questions are answered instantly by Electro Testing Instruments. Accurate adjustments assured. The thoroughness essential to a satisfactory Tune-up job!

If your jobber can't supply genuine "Electro" Testing Instruments, write us for particulars.

ELECTRO PRODUCTS CO., 621 EAST 216th STREET, NEW YORK

New Non-Skid Tire

Further step in its tire line simplification is announced by the Goodyear Tire and Rubber Co. of a new and different Deluxe, link grip, non-skid automobile tire.

Unlike similar appearing tread designs, the new deluxe is not a rib tread, its difference being in two outside grooves, smaller notches of which make them more flexible so the grooves close up, enabling the small notches to grip the road.

The new tire is supplied in a range of all-black sidewalls only, from 5.50-16 to 7.50-16, in both four and six-ply construction (excepting the final size in the series available only in six plies). The new tire will be equipment on many of the new 1942 car models.

Issues Weekly Stock List

A weekly stock sheet listing quantities of various standard style Kennametal carbide tools carried in stock, has been made available by McKenna Metals Company, 286 Lloyd Ave., Latrobe, Pa. Tools carried in stock are rough ground and tipped with Kennametal grade KM, the most commonly used grade for cutting steel. These tools are shipped immediately upon receipt of order, or partial shipments are made in the case of unusually large orders.

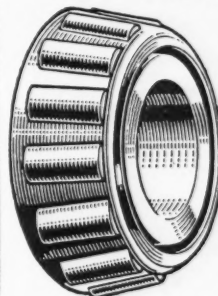
The McKenna Metals Company also announces that the most popular types of standard Kennametal tools (when not carried in stock) are made up and shipped within two weeks. On modified standard tools, orders are filled within one week to 10 days.

**PRATT
TAPERED ROLLER
BEARINGS**

The Perfect Replacement

**Line for all
makes of**

- Passenger Cars
- Trucks
- Buses
- Tractors
- Farm Machinery



Recognized as the Standard Replacement Bearing by Jobbers and Servicemen everywhere.

ESTABLISHED 1893

WM. E. PRATT MFG. CO.
JOLIET, ILL.

**SPARE PARTS?
—IN A HURRY**

That's how you get them by RAILWAY EXPRESS—the service that makes and keeps friends. Use and specify RAILWAY EXPRESS for whatever you need or ship. Low rates. High economy. It pays!

RAILWAY EXPRESS
AGENCY INC.
NATION-WIDE RAIL-AIR SERVICE



*So-You want
to Clean—
and Clean Fast!*

USE MAGNUSOL

It's so easy to do a real cleaning job with Magnusol. Just spray the mix on. Let it soak a few minutes. Then rinse off with water hose. That's all. You get clean surfaces, free of all grease, oil and dirt, without brushing or scrubbing.

MOTORS CHASSIS WHEELS

are most economically cleaned with Magnusol, because this concentrated cleaner which you use in a one to eight mixture with kerosene not only goes much further, but works faster. It takes the "cling" out of grease and oil in jig time.

It's sure—It's harmless to skin, metals and all automotive materials—It's non-flammable—And it leaves no unpleasant after-odor.

If you've never tried Magnusol—ask for details on our 30-day trial offer.

AUTO-CLEANING SHORT CUTS AND ECONOMIES

fill the 50-page "Magnus Automotive Cleaning Handbook". Ask for your copy now.

MAGNUS CHEMICAL COMPANY

Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps, Sulfonated Oils, Emulsifying Agents and Metal Working Lubricants.

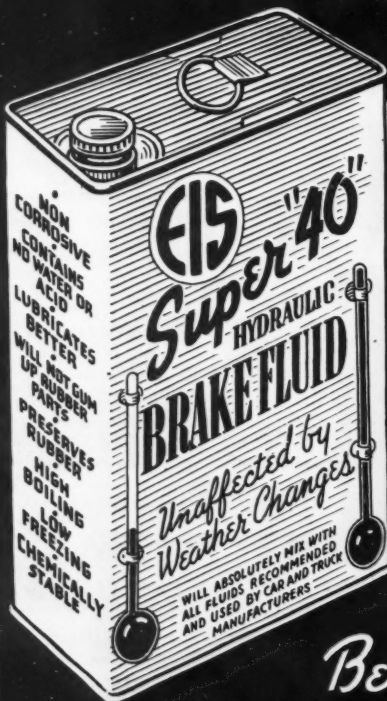
36 South Avenue

Garwood, N. J.



MAGNUS CLEANERS

EIS SUPER "40" MIXES PERFECTLY WITH ALL FLUIDS RECOMMENDED BY CAR MANUFACTURERS



EIS Super "40" BRAKE FLUID

*The Pioneer of
Better Brake Fluids*

EIS MANUFACTURING CO., INC.
MIDDLETOWN, CONN.

by the Makers of "THE BRAKE PARTS LINE"

Ramco Field Executives

Plan New Sales Program

District managers and Ramco field executives from the United States and Canada met at the main office and plant of the Ramsey Accessories Mfg. Corp. in October for a three-day conference on the 1942 Ramco sales and merchandising programs, which are designed to meet the increased requirements for automotive servicing brought about by the national defense program and the curtailment of new-car production.

A feature of the conference was the announcement of the important plant expansion moves which have greatly increased production facilities and speeded up service to jobbers as well as augmented capacity to meet original equipment requirements.

Studebaker Field Forces

Conclude Joint Meetings

Following a series of Business Service Management field meetings for dealers, Studebaker's regional office service managers and the entire membership of the Business Merchandising Division have just completed a joint meeting at the home office in South Bend, according to C. S. Fletcher, sales manager.

The meetings, covering a two-week period, were conducted by D. O. Wilson, general service manager, and R. A. Reese, manager of the Business Merchandising Division.

The program outlined is said to be a prelude to a further concentrated effort on the part of all Studebaker field personnel to assist dealers in better management of their businesses, particularly in the producing of more revenue and profits from the sale of service, parts and accessories, and gas and oil.

Promoted by Nash

Announcement of important promotions in the production and engineering departments of the Nash Motors Division of Nash-Kelvinator Corp. has been made by George W. Mason, president of the corporation.

R. A. DeVlieg, formerly general works manager, has been elected vice-president of the corporation in charge of all Wisconsin operations. DeVlieg will continue to make his headquarters in Kenosha.

It also was stated that N. E. Wahlberg, vice-president, will head a newly formed Engineering Research Division. In this capacity, Wahlberg will have charge of the varied future development research activities of the corporation. Associated with Wahlberg in his new development research activities will be Meade Moore, as chief research engineer of this division.

Floyd Kishline will be the new chief engineer replacing Moore.



A Business Building
Plus Service for Your Customers

STROMBERG FLOW METER

The instrument that tells the whole gasoline-consumption story at a glance... Dial shows gallons per hour in 1/10 gal. graduations; inner arcs denote miles per gallon. Convenient to handle—10"x9 1/2"x5". Easy to install—just hook-on to fuel pump outlet and carburetor. For more details, write to-day to

E. A. STROMBERG CO., INC.
1160 N. Howe Street, Chicago, Ill.

Handy

RECT-O-LYZR

FAST CHARGER

Accurately tests each cell SEPARATELY and charges fast and SAFELY at automatically tapered rates—without removing battery from car. Price complete, \$198.00
BALDOR ELECTRIC CO.
4375 Duncan Ave.,
ST. LOUIS, MO.



FIRST in Popularity!



Wheel
Balancing Weights



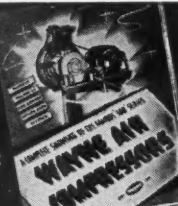
Millions
Used
Every Year

HARLEY C. LONEY CO.

16893 Wyoming
Detroit, Michigan

FREE
SAMPLE

MAIL
COUPON
FOR Free
MONEY SAVING
CATALOG...



WAYNE AIR COMPRESSORS

NAME
ADDRESS
CITY STATE
The Wayne Pump Co., Ft. Wayne, Ind.

Sept. Tire Production

Below August Figure

Shipments of automotive pneumatic casings during September, 1941, decreased 2.5 per cent under August according to statistics released today by the Rubber Manufacturers Association, Inc. September shipments, 5,264,357 units, were 18 per cent above September, 1940, however.

Production, 4,583,324 units, was 8.4 per cent under August, but was 3.9 per cent above September, 1940.

September shipments of casings for original equipment purposes totaled 1,470,286 units, an increase of 30.9 per cent over August and .4 per cent over September, 1940.

Replacement shipments during September, 3,667,461 casings, were 11.5 per cent below August, but 26.5 per cent above September, 1940, replacements.

Pacific Coast Manager

The White Motor Co. has appointed W. D. Patterson as manager of the Pacific Coast Region, according to announcement of J. N. Bauman, vice-president and general sales manager. He succeeds L. H. Magor, who resigned as of Sept. 1. In his new position Patterson will have charge of the entire Pacific Coast, Hawaii and Alaska.

Patterson was born in Jacksonville, Fla., but most of his career to date has been spent on the west coast. He attended school in Los Angeles and joined the White Motor dealership in that city in 1922. He has been with the White organization ever since.

Tire-Valve Improved

Improvement of fast-inflating valves for LifeGuards (safety tubes which convert blowouts into slow leaks) enabling them to retain all the safety features of the present grommet type, but permitting inflation as quickly as with conventional tubes, is announced by The Goodyear Tire and Rubber Co.

More important than the new valve's increased speed of inflation is the fact that time required to deflate the inner tube in the event of a blow-out is longer than with the present grommet type product, which has permitted cars to be brought to safe sure stops after blowouts or punctures, while traveling at high rate of speed.

BUY NO BATTERY CHARGER

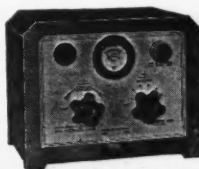
Until You Have Investigated The VALLEY SUPERDUTY CHARGER

• Fully Guaranteed for Two Years—Valley, modernized superduty chargers will give you the utmost in value... enable you to cash in on the big profits in battery charging. Valley chargers are easy to operate... no moving parts... connecting to the lighting circuit. Low in operating cost. Order yours today.

Model SG-12 charges 1 to 12 6 volt batteries—\$28.00.

Valley Electric Corp.

4221 Forest Park Blvd., St. Louis, Mo.



FINNED SHELL SAVES GAS

Ask your Jobber
MOTOR MASTER PRODUCTS CORP.
4757 Ravenswood Ave., Chicago, U.S.A.
Export Distribution
Borg-Warner International Corp., Chicago

SpeedWay 1/2" No. 89 DRILL

Full size, full weight, full capacity. Specially wound high torque 115 V. Universal 500 R.P.M. SpeedWay motor. Forced air cooling, oilless bearings, natural grip breast plate, removable side handle. Streamlined die cast case.



\$27.50

SPEEDWAY MFG. CO.
1880 S. 52nd Ave. Cicero, Ill.

THERE'S ONLY

1

BURN-OUT PROOF DIRECTIONAL SIGNAL SWITCH

In complete sets of Signal-Stats or as a replacement switch—ASK YOUR JOBBER

SIGNAL-STAT CORPORATION

68 JAY STREET BROOKLYN, N. Y.

TRADE MARK NOC-OUT HOSE CLAMPS

THE HOSE CLAMP
WITH THE
THUMB SCREW



For fast, dependable hose connections, use NOC-OUT Hose Clamps... standard in the automotive industry for many years for their leakproof, trouble-free sealing features. Quick tightening thumb screw provides equal pressure all around. Type "A" Adjustable... fits many hose sizes. Type GBB heavy duty, solid band for Booster Brakes. GSHH for all heater hose. Type HP for all high pressure air and gas lines. Sold by dealers and jobbers everywhere.

WITTEK MFG. CO.

4305 W. 24th PL., CHICAGO, U.S.A.

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This Advertisers' Index is published as a convenience, and not as part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

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Conserve our nation's supply of Anti-Freeze with the No. 33A **FREEZ-D-TECTOR**

AND KEEP THOSE CARS ROLLING

All Anti-Freeze manufacturers are making repeated pleas to car owners to conserve our nation's supply, since the basic Anti-Freeze materials are essential to National Defense.

You too Can Do Your Part!

Equip yourself with a No. 33A FREEZ-D-TECTOR—the world's finest Anti-Freeze tester (costs no more than an ordinary instrument). Then you can render a thorough, grateful job to the motoring public by assuring them adequate freeze protection throughout the entire winter with a minimum consumption of Anti-Freeze. Only in this way can the limited supply of Anti-Freeze go around—keep the nation's cars rolling throughout the cold winter months.

DEALER'S PRICE
\$4.95 OUTRIGHT

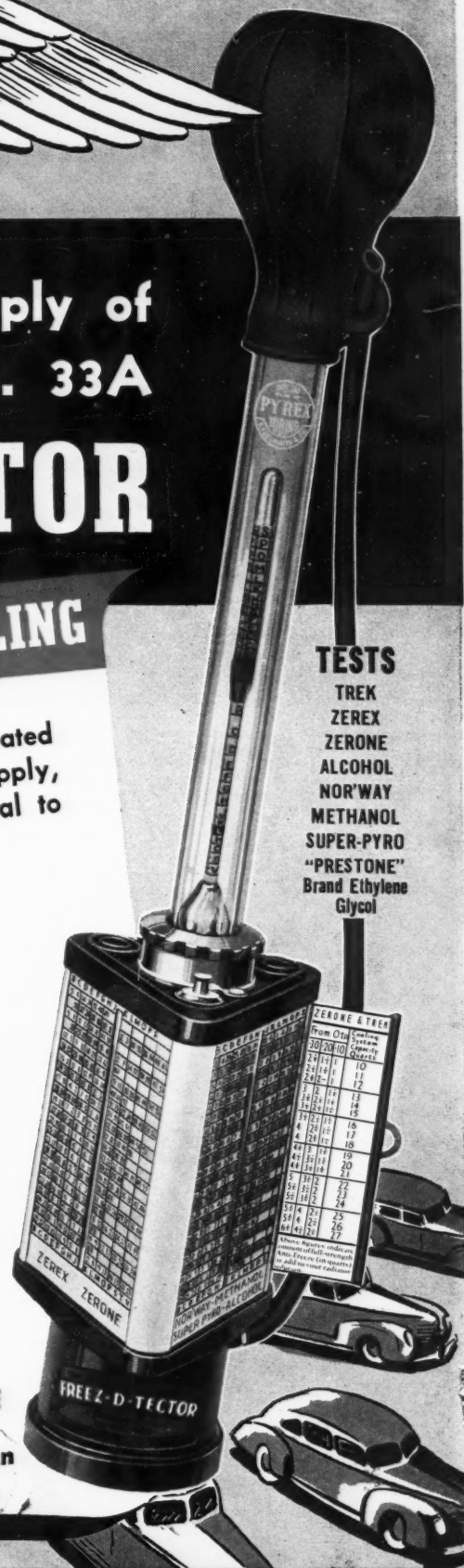
\$3⁹⁵

ONLY EXCHANGE

Ask your jobber about our liberal trade-in plan

TESTS

TREX
ZEREX
ZERONE
ALCOHOL
NOR'WAY
METHANOL
SUPER-PYRO
"PRESTONE"
Brand Ethylene
Glycol



Specify No. 33A FREEZ-D-TECTOR and get the Best
E. EDELMANN & CO. - Chicago

BOWES "SEAL FAST" SPARK PLUGS ARE

Good Enough for Me!
says Rex Mays



WINNER OF THE **AAA** RACING CHAMPIONSHIP FOR 1940 AND 1941



● Six of the toughest races in America have brought out the fact that Rex Mays is one of the greatest racing champions of all time . . . and when Rex says Bowes Plugs are good enough for him, it can mean only one thing . . . that Bowes Plugs are engineered to give championship performance . . . year in year out. Here's the Rex Mays record in the AAA Competition for 1940 and 1941.

FOUR 1sts..TWO 2nds..IN SIX STARTS

All over the United States and Canada thousands of motorists are echoing Rex Mays' choice of Bowes Spark Plugs. Year after year the sales of Bowes Plugs steadily mount . . . 1941 sales are 'way out in front of the 1940 record. Yes, motorists depend on Bowes Plugs for enduring high-quality performance under ANY driving condition . . . because with Bowes Plugs

BOWES



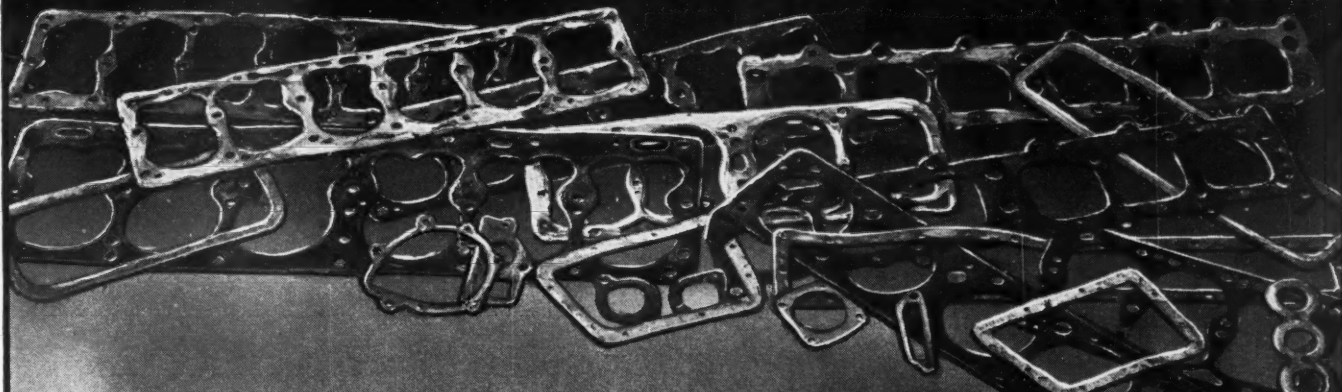
SPARK PLUGS

THEY'VE GOT WHAT IT TAKES TO *"Take It"*

● You can add many profit dollars to your spark plug sales with Bowes Plugs. First of all, you just can't be undersold by competition . . . Bowes Plugs are never "chiseled." Get MORE profits, BIGGER profits with Bowes Plugs. Ask the Bowes Distributor or write to Bob Bowes, President,

**BOWES "SEAL FAST" CORPORATION
INDIANAPOLIS**

National Defense **REQUIRES CORK, COPPER AND ALUMINUM**



DO NOT SCRAP USED GASKETS!

RESURFACE used, undamaged gaskets with Permatex Form-A-Gasket Number 2 or Permatex Aviation Form-A-Gasket Number 3.

Cracked or broken gaskets should be repaired first with Permatex Form-A-Gasket Number 1.

Permatex Form-A-Gasket Number 1 dries fast, sets hard and gives strength to any gasket or assembly.

Permatex Form-A-Gasket Number 2 dries slowly, remains pliable and preserves all types of gaskets from thinnest cork to heaviest copper.

Permatex Aviation Form-A-Gasket Number 3 does not dry and does not run, although applied with a brush. Fine on cylinder head gaskets because it prevents corrosion and head seizure.

All of the three types of Permatex Form-A-Gasket make assemblies leakproof to gasoline, gasoline vapor, kerosene, hot or cold lubricating oil, fuel oil, grease, hot or cold water, salt water and cooling system solutions containing any standard type of anti-freeze.



PERMATEX COMPANY, INC.
Sheepshead Bay, N. Y., U. S. A.

'SHOW'



or no 'SHOW'....

your Service Opportunity is bigger than ever!

Why not use the time you could have spent at the show in thinking out ways and means of increasing your service volume and profits?

You can't begin in a better place than your paint department. Owners are going to take more pride in their cars... have repairs and touch-up work done more promptly and frequently. Used car buyers are going to favor the newly painted, quality reconditioned cars that have as much as possible of that new car look.

All of which means a profitable opportunity for the well-organized paint department.

From the standpoint of floor space and operating costs, a well-managed paint department can be made one of the best service investments in your entire shop. On a paint job you can see exactly what has to be done. You can estimate your cost accurately and be sure of your profit.

Ditzler is in a position to give you practical help in getting such a paint program going... and to give you a complete line of dependable re-

finishing materials to go with it. For used cars, Ditzler offers materials whose "applied cost," including material and labor, is no more, and oftentimes less, than other less standard materials.

For new cars that need touch-up, Ditzler offers you a complete, convenient, authentic color service, including every production color... in factory cans or by formulae for use in mixing machines.

Ditzler Standard IM Lacquers match in color and composition the production finishes used on lacquer-finished cars.

For baked enamel jobs, Ditzler provides two types of materials... Ditzler IM Two-Star Colors for small, rush jobs; and Ditzler QDE Enamels for larger areas or all-over jobs.

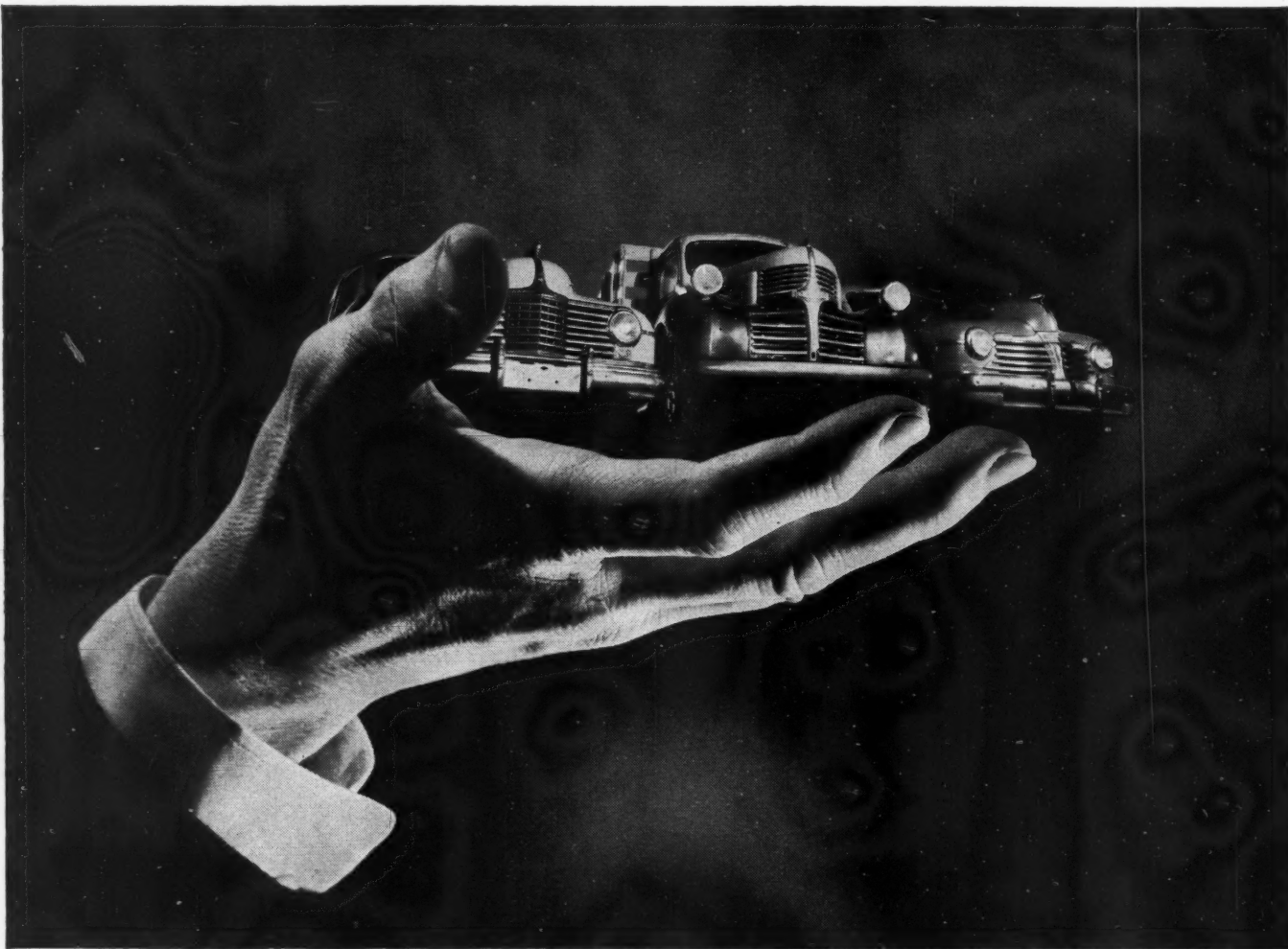
We invite car dealers and used car merchandisers interested in paint as a source of added service volume and profit, to investigate the possibilities of a real Ditzler Paint Program.

DITZLER COLOR COMPANY
DETROIT • MICHIGAN



This sticker, pasted on the door jamb of refinished cars, provides space for your name and for Ditzler color identification. Ask your Ditzler jobber about it.

DITZLER



A swell hand...if you hold it

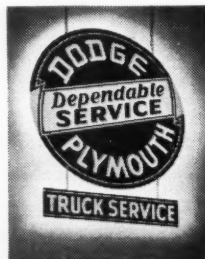
TAKE A LOOK AROUND and ask yourself if you know of any better proposition in the automobile world than the Dodge three-fold franchise.

ASK YOURSELF FRANKLY whether Dodge, Plymouth and Dodge Trucks aren't just about the most "natural" combination for sales and service profit and protection in the business.

THEN LOOK AT THE RECORD—these Dodge dealers do the largest business in the motorcar

world—excepting Ford and Chevrolet who, of course, have twice as many outlets.

DODGE, of course, has always been interested in able men, capable of doing a job for themselves and for Dodge. Dodge closely cooperates by putting the best assortment of working tools in their hands. Occasionally opportunities develop. So, why not get the Dodge story? The time may come when we can get together.



The greatest sales and service combination in the business.

WHY VICTOR LEADS



VITAL TRANSPORTATION

An ever-increasing demand for defense materials requires automotive transportation units that can operate under full loads and full power, full time. In heavy duty engines; in trucks, buses and motor cars, Victor Gaskets and Oil Seals are a proved guarantee against delays due to sealing failures. Victor Manufacturing & Gasket Co., P. O. Box 1333, Chicago, Illinois, U. S. A.

WORLD'S LARGEST GASKET MANUFACTURER

VICTOR

GASKETS • OIL SEALS • GREASE RETAINERS • SHEET PACKING • GASKET COMPOUNDS



Automotive America is showing the world some *real* harmonizing!

REMEMBER the old-time barbershop quartette? (Man, that was America!) Remember how Doc or Joe had to set the pitch before the boys could get going?

The grim "theme song" today is not "Sweet Adeline," but with the same old-fashioned close harmony, American industry has hit its keynote, and the result is mighty pleasing to the ear!

And in the big American Job today, it isn't all flags and drums, nor guns and tanks and planes. Equally vital is TRANSPORTATION . . . wheels that must be kept rolling.

Whether we build or sell or service America's motor cars and trucks and buses, it's a privilege—an honor—and a grave responsibility for each of us to harmonize our efforts with the others.

As the pace increases—the need for more vehicles and repairs for the old ones is a battle-front that is real and vital for final success.

On this front Bendix is at your service . . . past record and present accomplishment speak for themselves as to our ability and spirit . . . so, as we often say . . .

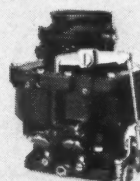
Call on Bendix.

«Bendix Products»

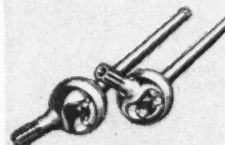
BENDIX PRODUCTS DIVISION OF BENDIX AVIATION CORPORATION
SOUTH BEND, INDIANA. In Canada: BENDIX-ECLIPSE OF CANADA, LTD., WINDSOR, ONTARIO



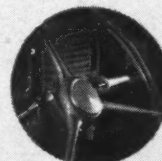
Bendix B-K
Power Braking



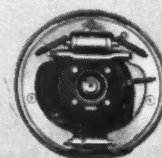
The Stromberg
Carburetor



Bendix-Weiss Constant
Velocity Universal Joint



Bendix Finger-Tip
Gear Control



The Bendix
Brake

CONSERVE ANTI-FREEZE...



BY TESTING REGULARLY WITH **KIMBLE** SCIENTIFICALLY ACCURATE **FREEZE-TESTERS**

The Wheels of defense are kept moving only by conservation of motive power. Accurate knowledge of the condition of automotive cooling systems—through the use of Kimble Freeze-Testers—helps the army to "keep 'em rolling" at peak efficiency during the most strenuous winter maneuvers. Service Stations and Garages throughout the nation likewise depend upon Kimble instruments to help conserve anti-freeze for civilian use.

Designed and built by the outstanding manufacturer of Scientific Glassware, Kimble Anti-Freeze Testers—and Kimble Battery Hydrometers—play an important role in defense through conservation of power and anti-freeze by ACCURATE TESTING.



• • • The Visible Guarantee of Invisible Quality • • •

KIMBLE GLASS COMPANY

RUTH GLASS DIVISION—CONSHOHOCKEN, PA.



Branch Offices in New York, Chicago, Detroit, Philadelphia, Indianapolis, Boston

For Assurance



Collier's P.S.

sells your service and stops the "come-backs"!

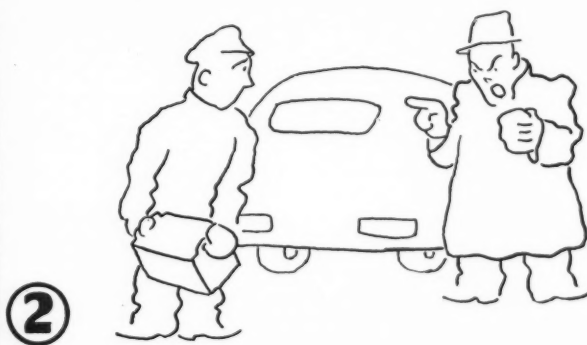

 No other magazine is doing the tremendous job Collier's does, month after month, in selling your shop to car owners—millions of them! No matter what you, personally, do about it, some of your shop business is due to Collier's P.S. Campaign. But get the most out of it by telling car owners that you are "P.S. Headquarters"! 
 Order your P.S. Tie-In Material now. Use the convenient order blank at the right.

**"YOU PUT ANTI-FREEZE IN MY CAR-AND
NOW I'M FROZEN UP. WHAT'S THE IDEA?"**



P.S. SAYS: "Have a thorough investigation made for leaks that may exist now or develop. Water-pump packing, hose connections, hose, gaskets, radiator, drain cocks should all be under suspicion as possible saboteurs of anti-freeze." This is how to save anti-freeze and parts for defense. P.S. convinces your customers of the need for a cooling-system check-up—saving you future trouble!

**"I DON'T CARE WHAT YOU SAY
— I SHOULDN'T GET STALLED!"**

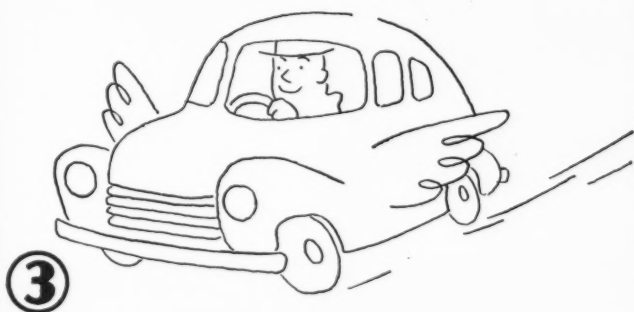


P.S. SAYS: "Even a fully charged battery feels the cold. So start the winter with a fully charged battery and with the cables in good condition. After that, have your service man check the battery in the months ahead." Every motorist owes it to himself—and the country—to follow this advice. P.S. confirms your recommendations . . . sells your service and stops the "come-backs"!

Collier's P.S.

COPYRIGHT 1941, THE CROWELL-COLLIER PUBLISHING CO.

**"BOY - SHE'S RUNNING SMOOTH
I'M SURE GLAD I GOT THAT TUNE-UP!"**



P.S. SAYS: "But don't be content with simply bringing your battery up to par. Lighten its load as much as possible with a tune-up. A tune-up, you understand, is not a major operation. It is the ounce of Preventive Service that increases the joy of motoring and decreases repair bills." At last, your customers know what you mean by tune-up... and tune-ups are particularly important these days!

**"I'VE DRIVEN A CAR FOR TWENTY YEARS
-AND NEVER TOUCHED A UNIVERSAL!"**



P.S. SAYS: "If your clutch develops a tendency to grab, don't merely consider it an annoyance. It is a sign that an adjustment or replacement is needed. Have it attended to before it does damage to the universals, differential, or rear axle." This is one way P.S. helps answer your customers' question of "Why should I do that?" And it's another P.S. contribution to the saving of defense materials!

"OIL IS OIL - AS FAR AS I'M CONCERNED!"



P.S. SAYS: "Have your service man make the important change to winter oil in the crankcase and winter lubricants in the differential and transmission. Oils and lubricants not designed for cold weather result in serious wear to gears, bearings, and other moving parts!" Again, P.S. backs you up—saving you and your customers grief. And it's an important part of America's all-out effort!

**P.S. Sales
are Patriotic Sales this Season!**

campaign

Get Going Now!

**USE THIS CONVENIENT BLANK TO
ORDER YOUR P.S. TIE-IN MATERIAL!**

PREVENTIVE SERVICE,
Collier's, 250 Park Avenue, New York City.

Please ship me the following P.S. Tie-In Material. I am
enclosing a check for \$_____to cover the cost.*

QUANTITY	MATERIAL	PRICE	COST
	K-1 MOUNTED REPRINT. Full-size, color reproduction of the Collier's winter P.S. Feature. Mounted on stiff plywood, with easel. You'll want several for counter and floor displays.	2 FOR 25c	
	K-2 PLAIN PROOF. Full-size, color reproduction of the Collier's Winter P.S. Feature. Ideal to mail to your Number One list. (Minimum order: 100)	\$2 PER 100	
	K-3 QUESTION & ANSWER BOOKLET. Also ideal for your Number One mailing list. Questions and answers show your customers the necessity for many winter jobs not covered in the P.S. Feature. (Minimum order: 200)	\$1 PER 100	
	K-10 P.S. BADGES. These curiosity-arousers, worn by your men, get customers talking and asking questions. They're in brilliant red and black, 2 1/8 inches in diameter, and read: "P.S. for Personal Safety." You'll want one for each man.	5c EACH	
		TOTAL \$_____	

Firm Name _____

Street _____

City _____ State _____

Authorized Signature _____

*Minimum order, \$3.00. Payment must accompany this order blank.
All shipments made by express, charges collect.



What's it got folks haven't got in their present automobiles?

HERE stands an automobile—the automobile, we believe, of 1942.

What's in it to make it that—and to lay fair claim on buyers' attention—and on yours?

Well . . .

There's a *valve-in-head engine* in it. The same type of engine that's used in every modern airplane. The type of engine now celebrating forty solid years of unquestioned superiority.

There's *FIREBALL compression* in it. Specially contoured Domite pistons that wring more good out of every drop of gasoline.

There's *Compound Carburetion†* in it. A constant check and *double check* on gas usage to see that you get both power and range from the fuel you buy.

There are *crankpins and journals* in it with an oil-cushion finish that multiplies bearing life.

There are *new connecting rods* that

take up the heavier burden of present piston materials without adding a single mote of weight.

There are *new broadrim wheels* on it that not only last far longer, but steady the ride, take heel-over out of sharp corners, hold you on your track like a streamliner on its rails.

There is torque-tube drive such as you find in America's fastest fighting planes.

There are soft all-coil springs, forever gentle and easy, that never need any mothering care.

There are six dozen different kinds of metals. There is precision carried out in terms of millionths of an inch.

There is the brain work of men who, faced with the need to con-

serve defense materials, found better ways to use other things so that you might still find those qualities you've come to expect from a Buick.

There is proof in it that "*you can do it if you try*"—and that brains, and imagination, and intelligent action can and will find a way to do a job no matter how tough the situation.

No other car has ALL THIS FOR YOU IN 'FORTY-TWO

FIREBALL STRAIGHT-EIGHT VALVE-IN-HEAD ENGINE ★ COMPOUND CARBURETION (standard on most models) ★ **OIL-CUSHIONED CRANKSHAFT PINS AND JOURNALS ★ STURDI-LITE CONNECTING RODS ★ STEPON PARKING BRAKE ★ BROADRIM WHEELS ★ FULLY ADJUSTABLE STEERING POST ★ BODY BY FISHER ★ WEATHERWARDEN VENTI-HEATER** (accessory)

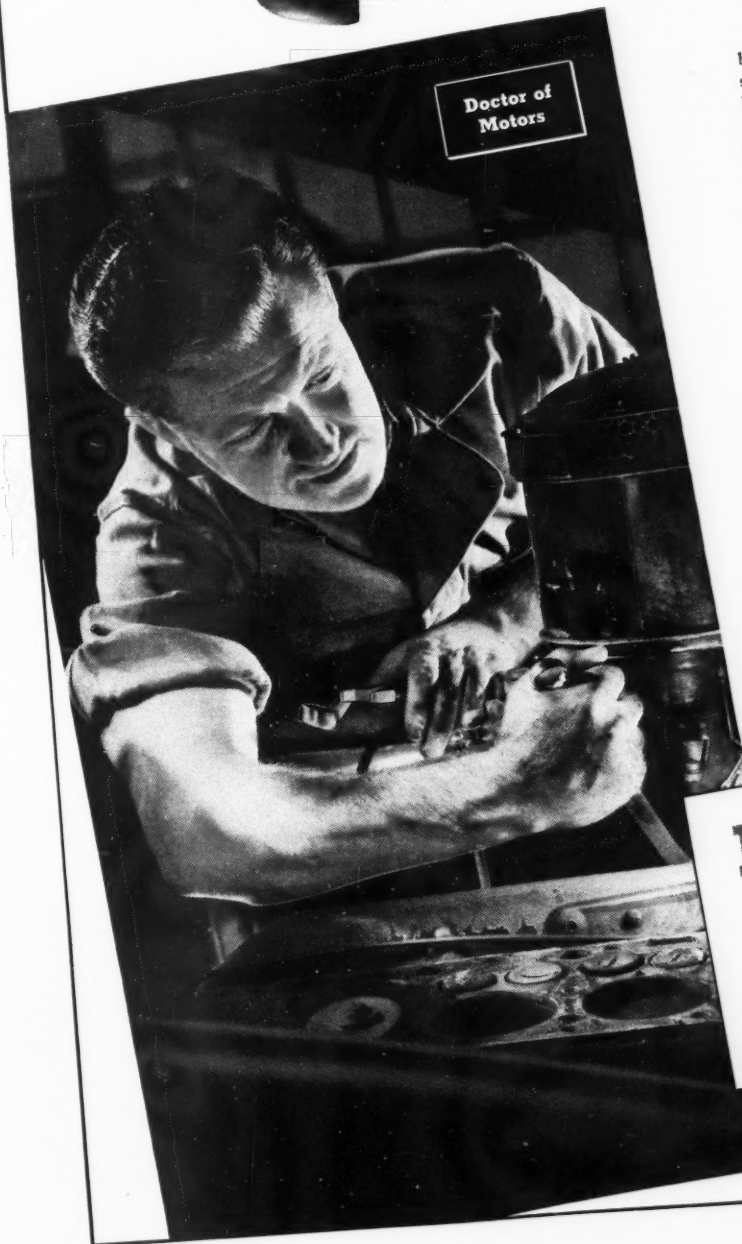
†Available at slight extra cost on Buick SPECIAL models, standard on all other Series.

"BETTER BUY BUICK"

EXEMPLAR OF GENERAL MOTORS VALUE



Just a Few Hours to Do a Job . . .
But Years to Learn How!



DOCTOR of Motors! You bring to him a limping automobile and he sends it out humming with new life and power. Frequently it's only a ten-minute job—sometimes longer. But whatever the time he actually spends fixing your car—think of the time he has spent in order to know how to fix it.

The modern automobile mechanic serves the car owner well and honestly. But to serve he must know. To his dexterity of hand he must add years of experience and study—study that never ends, for he must keep yearly pace with the design and servicing of America's motorcars.

BECAUSE he's intelligent, the automobile mechanic has a sense of responsibility for your car and your safety. That is why better mechanics everywhere recommend and install Perfect Circle Piston Rings.

If your car wastes oil, is sluggish, smokes at the exhaust—have your favorite mechanic install Perfect Circles. He knows how and why Perfect Circles do a better job of stopping oil pumping, increasing gas mileage and restoring power, pickup, and pep. It will take but a few hours—and the cost is surprisingly small. Perfect Circle Companies, Hagerstown, Indiana, U. S. A. and Toronto, Canada.

**PERFECT
CIRCLE**

PISTON RINGS

Building Confidence in Your Ability!
 [THE SECOND OF A SERIES]

Look for this message in the November 15 issue of The Saturday Evening Post. It is Perfect Circle's way of telling America that your knowledge justifies your getting a fair price for your work.

3 Easy Steps

THAT BOOST BUSINESS



1 Simply hand the Auto-Lite "Plug-Chek" Indicator to the car owner. This new kind of spark plug inspection service starts him thinking, talking, and *asking* about *his* spark plugs.

2 So easy to *show* him how his spark plugs match up with the examples on the "Plug-Chek" Indicator. Just let him see for himself.

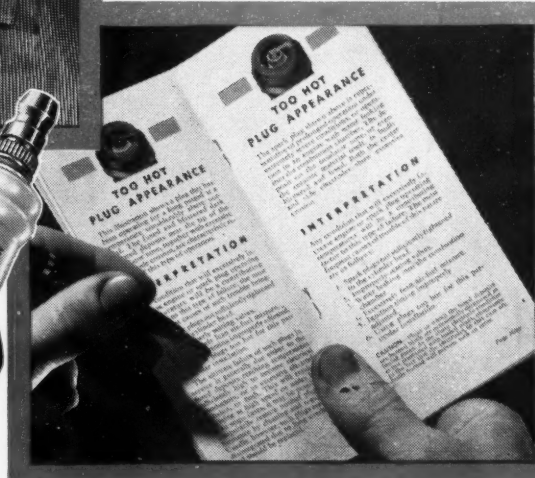
3 And the Data Book tells him what the plug condition indicates may be happening in his engine. "Plug-Chek" *tells him and sells him*—you get the business and profit.



Write for these **FREE** sales builders.

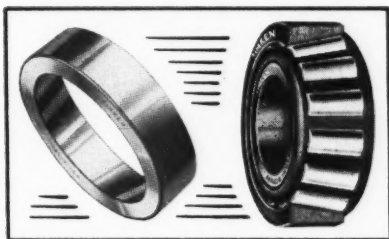


"THE greatest sales tool I ever had," says a Newark dealer. "Confidence, such as 'Plug-Chek' gives my customers, cannot be bought," says Philadelphia repair man. Thousands praise this unusual business builder. Watch "Plug-Chek" bring new life to your business, makes profits pile up faster. Ask your jobber or write to THE ELECTRIC AUTO-LITE COMPANY TOLEDO, OHIO • Merchandising Division • SARNIA, ONTARIO



AUTO-LITE SPARK PLUGS

IGNITION ENGINEERED BY IGNITION ENGINEERS



How the cup of a TIMKEN Bearing is made

The finish of the TIMKEN Bearing—shown to best advantage on the cup—is the finest surface finish known to modern bearing science. It is largely the result of the development of the profilograph—the first instrument of its kind capable of measuring surface irregularities to one-millionth of an inch! The profilograph was developed by Timken in conjunction with one of the world's leading technical authorities. This instrument enabled Timken engineers to develop new methods of grinding resulting in today's finish—the world's finest.

What this means to you

The finish on the TIMKEN Bearing has definitely increased bearing precision, improved bearing performance, lengthened bearing life and reduced bearing wear to a non-measurable degree. Every automobile owner and fleet and bus operator want these advantages and get them in every genuine TIMKEN Bearing—the *only* tapered roller bearing in existence with 43 years of experience behind it.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

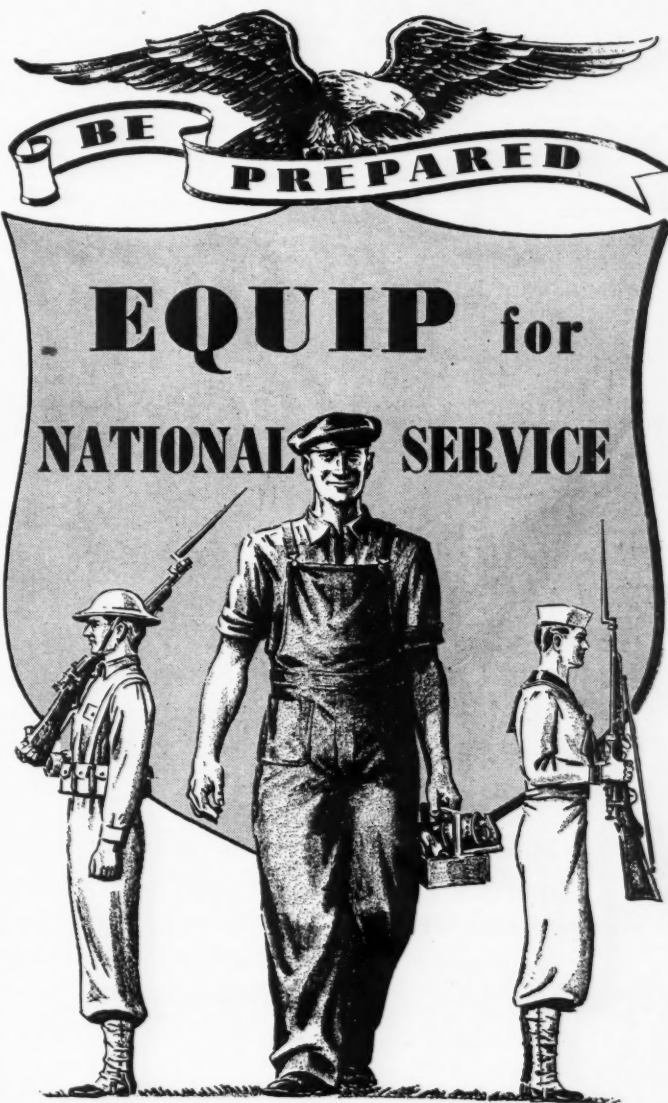
Service-sales Division

TIMKEN
TAPERED ROLLER BEARINGS

**THE 10 POINT
JOBBER CODE**
FOR SELECTING
MERCHANDISE

We Patronize Suppliers Who Qualify

- 1 QUALITY PRODUCTS
- 2 COMPETITIVE PRICES
- 3 INTELLIGENT CATALOGUE DATA
- 4 SOUND ADVERTISING
- 5 STRICT WAREHOUSING POLICY
- 6 CONTROLLED DISTRIBUTION
- 7 WORKABLE STOCK CONTROL POLICY
- 8 AVAILABILITY
- 9 COOPERATIVE SALESMEN
- 10 PROFITS



MILLIONS of automobile owners are going to keep the "old bus" for another year. It will need repairs, parts, paint, tires and accessories.

Instead of a \$10 or \$20 job, you can sell them a real overhauling . . . from \$40 to \$100 or more (depending on the age and value of the car) if you give them easy payment terms.

That's where the Automobile Reconditioning Plan can help you. It gives you the *cash*—your customer the *time*.

Ask your parts and accessory jobber, or write us direct for full details and the *FREE* display sign that brings in the business.

Do you need new equipment? Buy now and pay for it out of your profits. Ask your equipment jobber about A. E. P. . . . the purchase plan endorsed by the Automotive Equipment industry.



COMMERCIAL CREDIT CORPORATION

*His mechanics know their three R's**

IT may surprise you to know that the modern automobile contains some 12,000 parts.

These parts are so durable and precisely fitted that most of them function throughout the life of the car with no attention at all.

However, since anything mechanical requires some care, one of the things General Motors dealers do for their communities is provide service based on complete, first-hand, up-to-the-minute knowledge of the whole automobile.

To do this, most GM dealers send their mechanics to a factory training school each year.

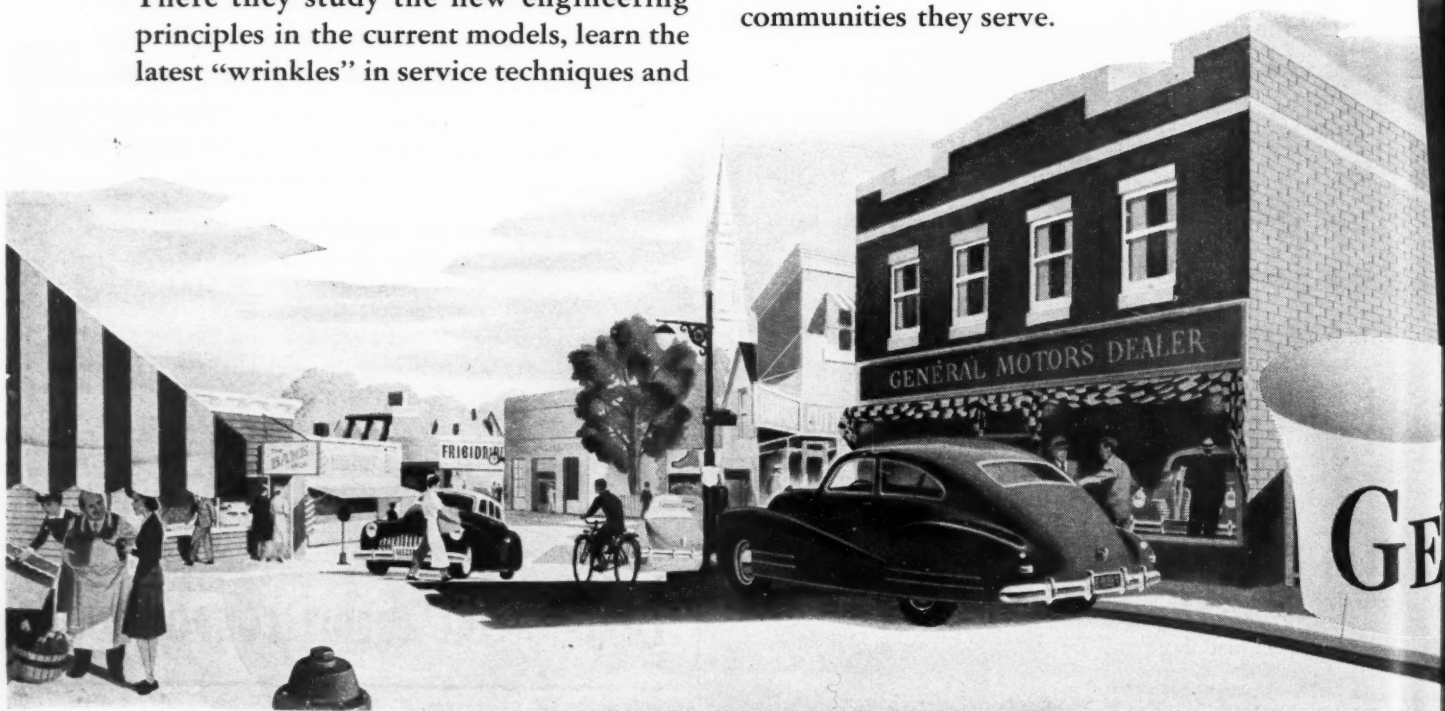
There they study the new engineering principles in the current models, learn the latest "wrinkles" in service techniques and

refresh themselves on the proper care of standard mechanical features.

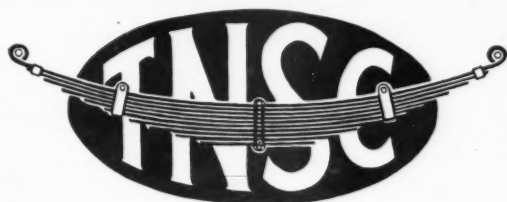
This is an important safeguard for the satisfaction you and millions like you desire from an automobile. It will be doubly important if the needs of national defense make it necessary for dealer service to prolong the useful life of cars in the future.

As a group, the dealers who sell GM cars have grown in ability with the industry of which they are a part. Year by year, they have risen to new responsibilities, and they are today, with mighty few exceptions, businessmen of whom we and their home towns can be proud.

That's why we look upon them as partners in progress, with us and with the communities they serve.



TRAINOR *Load-tested* SPRINGS



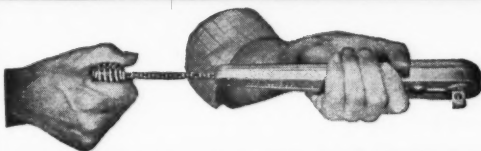
- Complete Springs for Cars, Trucks, Busses
- Main Leaves and Plain Leaves
- Trainor All Steel Helper Springs
- Truck Spring Reinforcing Sets
- Metal Spring Covers
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SPEED-RATCH



It has
**ZIP-
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removes or tightens nuts in a jiffy.

BEALL SPEED-RATCH is the new, improved Ratchet Wrench with patented pull-chain in handle. Quickly and easily tightens or loosens nuts at the hard-to-get-at spots — without finger manipulation. Saves valuable time in Auto Repair work. Satisfaction guaranteed. ASK YOUR JOBBER or write us. List Price **\$6.00**

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No Trick to Setting Window Glass!

**Do It Like
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Replacing glass in windshields, doors and ventilating wings becomes an easy job if you use

EVERSEAL Channel Stripping.

It's what the majority of car manufacturers use on original installations. Likewise, it's what the majority of glass-setting shops use. No glass breakage! Quicker work! And a water-tight job! Write today for FREE SAMPLE!

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Curtailment of new car production means increased service necessary to keep present cars rolling. Take advantage now of this tremendous, long-profit market with B-L Superchargers — The fast battery chargers that are service-proven and carry the Underwriter's Laboratories Approval Label. B-L Superchargers, backed by 20 years of engineering experience, offer you your best bet to modernize with "Plus" service sales.

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A Complete
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Includes Heavy Steel
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WORKS COLD OR HOT
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Not in stock at my jobber . . . attached to my business letterhead is my check, or M.O. on the condition that you ship me a 40-lb., 5-gallon size, GUNK at dealer's net cost, \$8.40— (\$8.40 west of the Mississippi) by FAST PREPAID AMERICAN EXPRESS . . . or send \$1.00 deposit for C.O.D.

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MOTOR-GENERATOR Type FAST CHARGERS

are Simple and Fully Automatic — no Hand Adjustments required.

- Built just like the one on your car or truck in a Giant Size.
 - Easy to Operate . . . its oversize means longer life and the Low Voltage output Prevents Overcharge.
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FOREMAN BATTERY BOOSTER

The Famous Product

Take no chances—use the proved WonderWeld to repair cracked blocks, cylinder, and valve ports. It's easy to use—it works!

Ask Your Jobber * Or Write for Literature

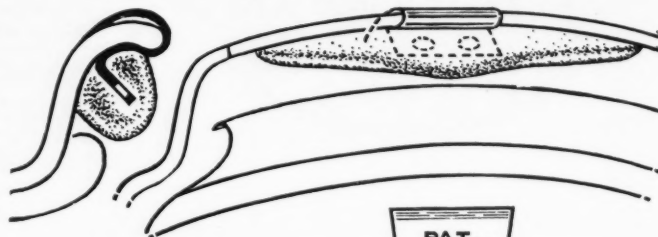


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Snugl FADE-AWAY Balance Weights



FITS RIMS WITH OR WITHOUT TRIM RING

Snugl Fade-Away Balance Weights have a Dove-Tail Clip that is Self-Locking and has a Bull-Dog Grip. Installation and adjustment are both easy. It cannot rattle or work loose at high speeds.

Your customers will like the easier steering, safer driving and longer tire wear they'll get with Snugl Fade-Away.

Heavy Duty Truck sizes, too: ½ to 1½ pounds.

Write today for literature describing the SNUGL Fade-Away Balance Weights and Pliers.

Balance Weight PLIERS

Designed to remove balance weights quickly from rims or to make adjustments.

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For production and maintenance of tanks, airplanes, trucks, road machinery, tractors, motorcycles, automobiles, Duro fine tools are essential for each particular job. In this mechanical age, Duro contributes full co-operation to today's maintenance and production problems.

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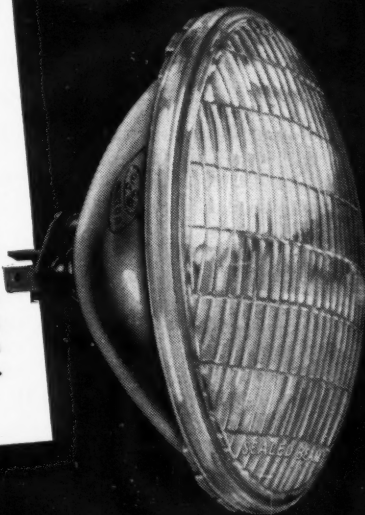
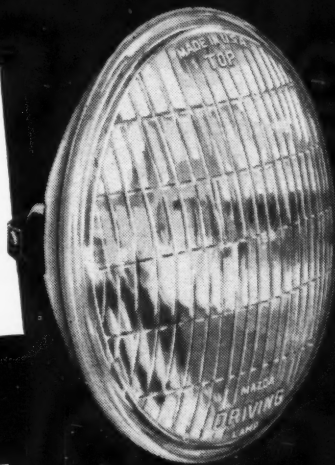
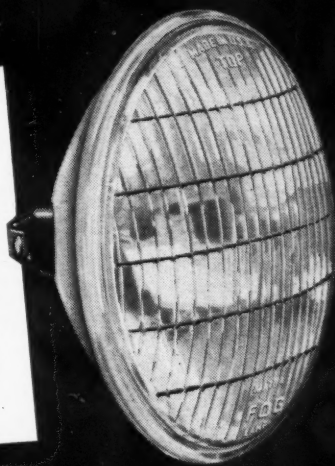


MANUFACTURERS OF OVER 500,000,000 TOOLS

THE NEW "ALL-GLASS" G-E MAZDA FOG LAMPS greatly improve seeing in bad weather. What made driving in foggy or stormy weather difficult was "stray light" reflected back from the moisture particles. By stripping the edges of the lens prisms and shielding the filament, stray light is practically eliminated. G-E MAZDA Fog lamps come with amber or clear glass.

G-E MAZDA DRIVING AND PASSING LAMPS are designed for pre-1940 cars using the Glaseal System. These lamps work automatically with existing headlamps to triple car lighting. In suitable equipment, they will fit any make or model, and are readily installed on the bumper.

"ALL-GLASS" SEALED BEAM MAZDA LAMPS have revolutionized headlighting and have given drivers greater safety than ever before. This is the lamp you'll want to order for renewals on '40 and '41 cars and for use in conversion units to bring old car lighting up to date. Remember, the "All-Glass" G-E MAZDA Sealed Beam lamp will replace any sealed beam lamp on all '40, '41, and '42 cars using sealed beam lighting, or on cars using sealed beam adapters.



HERE'S A TRIO OF LAMPS . . .

to build
your
profits!

THE basic construction of all three types of "All-Glass" G-E MAZDA lamps is the same. Each lamp is a complete one-piece G-E MAZDA lamp with fixed focus filaments, hermetically sealed inside a glass reflector fused to a glass lens. Each is a heavy-duty product of rugged, sturdy construction throughout.

Sell your customers these "All-Glass" G-E MAZDA lamps . . . to help give them the added light they need on the road! Ask your jobber salesman to show you these lamps, now available in equipment made by leading manufacturers. (G.E. makes only the lamps, not the equipment.) Order today from your G-E lamp distributor's salesman!

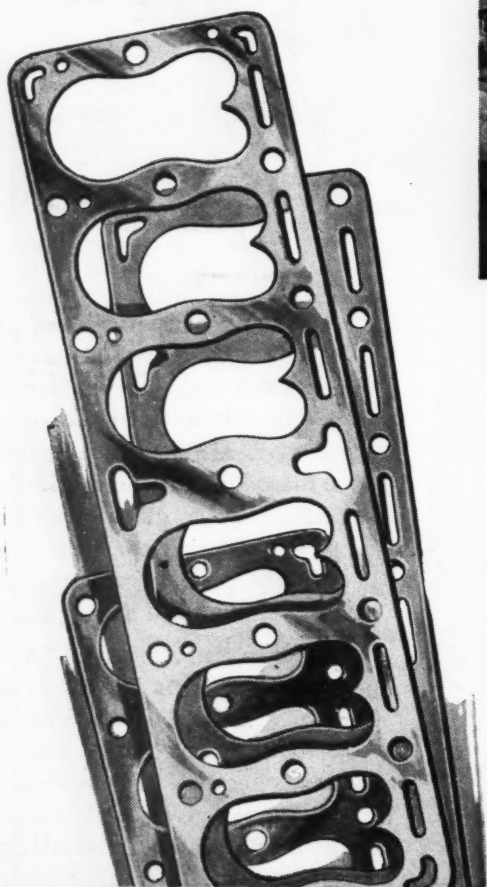
G-E MAZDA LAMPS
GENERAL  ELECTRIC

Made to stay brighter longer



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THE COMPLETE GASKET SERVICE



GASKETS FOR PASSENGER CARS, TRUCKS, BUSES, TRACTORS—FOR EVERY TYPE OF INSTALLATION

Gaskets of highest quality—made from finest materials—of all approved types of construction. Gaskets for every need, including the famous Fitzgerald Bulldog Gasket—a tougher gasket for a tough job—best for heavy duty service and high compression motors.

Tie up with Fitzgerald, not only for better gaskets, but also for sales and merchandising helps—including display material, racks, cabinets and board assortments. Your jobber will give you 100 per cent cooperation . . . The Fitzgerald Manufacturing Company, Torrington, Conn. — Branches, Chicago and Los Angeles — Canadian Fitzgerald, Limited, Toronto.

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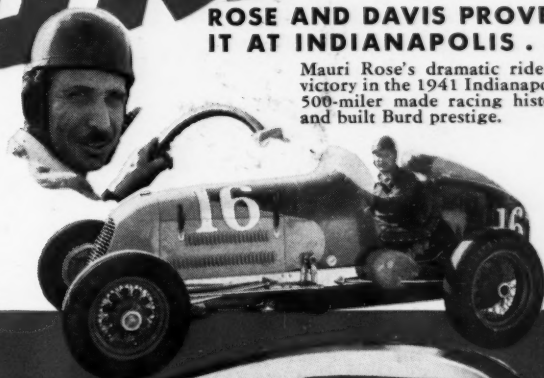


THE COMPLETE LINE THAT COMPLETELY SATISFIES

You can't beat BURDS

**ROSE AND DAVIS PROVED
IT AT INDIANAPOLIS . . .**

Mauri Rose's dramatic ride to victory in the 1941 Indianapolis 500-miler made racing history and built Burd prestige.

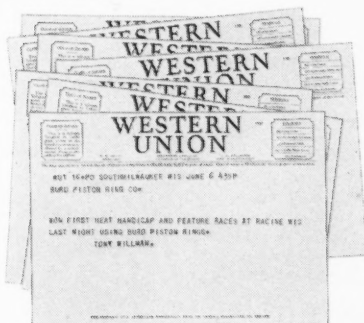


ROY HALL PROVED IT AT LANGHORNE (Pa.)

With stock Burd "Graf-Flox" Piston Rings (Quik-Seal" type) in his 1939 Ford coupe, Hall, the Atlanta speed demon, won the 1941 200-mile race on July 20th.

TONY WILLMAN PROVED IT IN MIDGET RACING

The "Mayor of South Milwaukee" was the man to beat wherever he entered midget competition with his Burd-equipped doodlebug. He won the majority of the races he entered.



LOUIS UNSER PROVED IT TWICE



Up-Hill to Land's End (in 17 MINUTES)
Louis Unser Wins 16.6 Mile Mountain Climb In Oklahoma

The King of the high hill-climbers used Burd rings to win the Land's End run on July 4th and the Pikes Peak thriller on September 1.



JOIE CHITWOOD PROVED IT ON DIRT TRACKS

The full-blooded American Indian, Chitwood, has become the most sensational dirt track driver on the AAA dirt ovals because of his repeated displays of daring. Joie says Burd "Graf-Flox" is his choice.



Burd's repeated victories in automobile racing dramatize the steadfast, dependable economy of "Graf-Flox" treated piston ring performance on America's highways. In pleasure cars, trucks, tractors, and Heavy-Duty motor transport service, "Graf-Flox" piston rings score achievements equally impressive. The combination of electric iron and "Graf-Flox" treatment used in Burd piston rings eliminates the danger of scoring and seizing. "Graf-Flox" piston rings move freely in piston grooves, and they do not lose their value through wear. Friction is reduced to a fraction with "Graf-Flox" . . . gas mileage is increased, and the "run-in" period is eliminated.

BURD PISTON RING CO., ROCKFORD, ILLINOIS

BURD

Graf-Flox PISTON RINGS

52,000 TANK-CARS OF GAS ... *by curing* "RIPE TOMATO ACCELERATION"!

There are at least 7,500,000 cars on the road with "ripe tomato acceleration"—being driven an average of 7,850 miles a year. Increase their gas mileage from 14 to 16 miles per gallon, and they will save 525,600,000 gallons of gas a year—enough to fill more than 52,000 tank-cars! Increase their oil mileage from 250 to 500 miles per quart, and they will save 29,550,000 gallons of oil a year—enough to fill an additional 2,955 tank-cars! *American Hammered Piston Rings can save this gas and oil.*

Here's one of the best opportunities *you've* got to share in the nation's defense! An average of at least one out of every four cars that come into your shop has "ripe tomato acceleration". Those cars and their owners are sabotaging our gasoline and oil reserves. In fact, the cost of the gasoline wasted by "ripe tomato acceleration" is *twice as great* as the wasted oil!

Tell those owners that. Tell them it's a *patriotic duty* to cure "ripe tomato acceleration". And you can do it the "American way"... with American Hammered Piston Rings! It's the one line with the right set-up for each engine condition and the one-and-only POWER ring in the second groove! Koppers Company, American Hammered Piston Ring Division, Baltimore, Md.

HERE ARE THE SYMPTOMS OF "RIPE TOMATO ACCELERATION"

When an engine's *dopey*... lags at the lights... pokes uphill like a fat woman out of breath... and the accelerator sinks to the floor with that all-gone, squashy feeling... that's "ripe tomato acceleration". It wastes power. Wastes oil. *And it wastes gasoline!*



FOR INCREASED POWER... DECREASED OIL CONSUMPTION... IMPROVED GAS MILEAGE, USE

American Hammered Piston Rings

a K O P P E R S product

